Maintenance and Service Guide

HP Pavilion dv4200 Notebook PC
Compaq Presario V4200 Notebook PC
HP Compaq nx7220 Notebook PC

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This guide is a troubleshooting reference used for maintaining and servicing the computer. It provides comprehensive information on identifying computer features, components, and spare parts; troubleshooting computer problems; and performing computer disassembly procedures.

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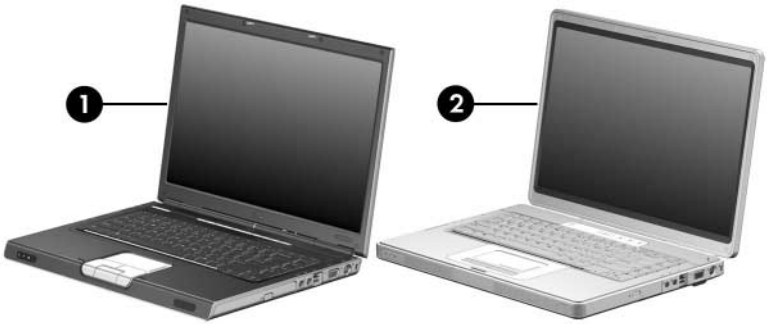
1

Product Description

The HP Pavilion dv4200 Notebook PC ❶, Compaq Presario V4200 Notebook PC, and HP Compaq nx7220 Notebook PC ❷ offer advanced modularity, Intel® Pentium® M and Celeron® M processors, and extensive multimedia support.



HP Pavilion dv4200 Notebook PC, Compaq Presario V4200 Notebook PC, and HP Compaq nx7220 Notebook PC

1.1 Features

- Intel Pentium M 2.00-, 1.73-, 1.60-, or 1.50-GHz processors, or Intel Celeron M 1.60-, 1.50-, or 1.40-GHz processors, varying by computer model
- 15.4-inch, WXGA, TFT (1280 × 800) with BrightView display, or 15.4-inch, WXGA, TFT (1280 × 800) display, varying by computer model
- 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by computer model
- 256-MB DDR synchronous DRAM (SDRAM) at 333 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Home Edition or Windows XP Professional, varying by computer model
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device, including dedicated horizontal (Compaq Presario V4200 and HP Compaq nx7220 models) and vertical scroll regions
- Integrated 10Base-T/100Base-TX Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini PCI IEEE 802.11b/g WLAN device (select models only)
- Support for one Type I or Type II PC Card slot, with support for both 32-bit (CardBus) and 16-bit PC Cards
- Support for ExpressCard slot
- External 65-watt AC adapter with 3-wire power cord

- 12- or 6-cell Li-Ion battery pack, varying by computer model
- Stereo speakers
- Volume up, volume mute, and volume down buttons
- QuickPlay buttons (select models only)
- Support for the following optical drives:
  - ❏ DVD±RW and CD-RW Combo Drive
  - ❏ DVD/CD-RW Combo Drive

Numerous references are made throughout this *Maintenance and Service Guide* to "full-featured" and "defeatured" models. A model is considered to be full-featured if it has 4 Universal Serial Bus ports and the following components:

- Digital Media Slot/Memory Reader
- Expansion port
- ExpressCard slot
- IEEE 1394 port
- Infrared port
- Quick Launch buttons (HP Pavilion dv4200 models only)

A computer model is considered to be defeatured if it has only 2 Universal Serial Bus ports and none of the components listed above.

- Connectors:
  - Audio-in (microphone)
  - Audio-out (headphone)
  - Digital Media Slot (full-featured models only)
  - Expansion port (full-featured models only)
  - ExpressCard slot (full-featured models only)
  - External monitor
  - IEEE 1394 (full-featured models only)
  - Infrared (full-featured models only)
  - PC Card
  - Power
  - Primary battery
  - RJ-11 (modem)
  - RJ-45 (network)
  - S-Video-out
  - Serial port (full-featured models only)
  - Smart card
  - Universal Serial Bus (USB) v. 2.0 (4 ports on full-featured models, 2 ports on defeatured models)

1.2 Resetting the Computer

If the computer you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS:

1. Prepare the computer for disassembly (refer to Section 5.3, "Preparing the Computer for Disassembly," for more information).
2. Remove the real-time clock (RTC) battery (refer to Section 5.9, "RTC Battery," for more information on removing and replacing the RTC battery).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do not reinsert any battery packs at this time.
6. Turn on the computer.

All passwords and all CMOS settings have been cleared.

This procedure does not clear a DriveLock password that has been set.

1.3 Power Management

The computer comes with power management features that extend battery operating time and conserve power. The computer supports the following power management features:

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting the level of performance
- Battery calibration
- Lid switch standby/resume
- Power button
- Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the computer are shown below and described in Table 1-1. Depending on your computer model, component locations may vary.

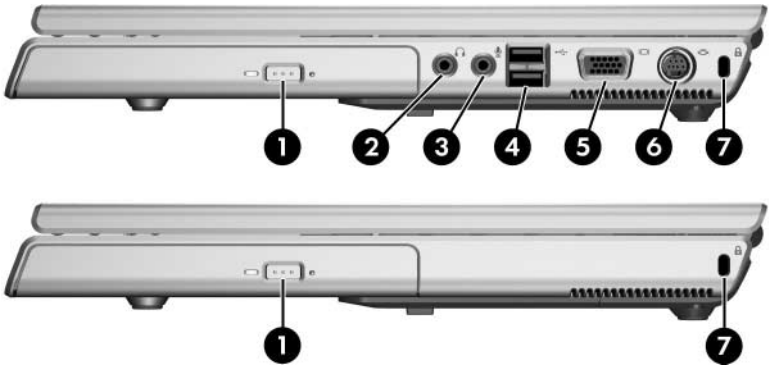
Front Components

Table 1-1

Front Components

Item	Component	Function
1	Power light	■ On: Computer is turned on. ■ Blinking: Computer is in standby. ■ Off: Computer is off or in hibernation.
2	Battery light	■ On: The battery pack is charging. ■ Blinking: The battery pack has reached a low-battery condition. ■ Off: The battery pack is fully charged or not inserted.
3	Integrated Drive Electronics (IDE) drive light	On or blinking: The internal hard drive or an optical drive is being accessed.
4	Consumer infrared (IR) lens (select models only)	Links the computer to an optional remote control.
5	Speakers	Produce stereo sound.
6	Display release button	Opens the computer.

The external components on the right side of the HP Pavilion dv4200 are shown below and described in Table 1-2. Depending on your computer model, component locations may vary.



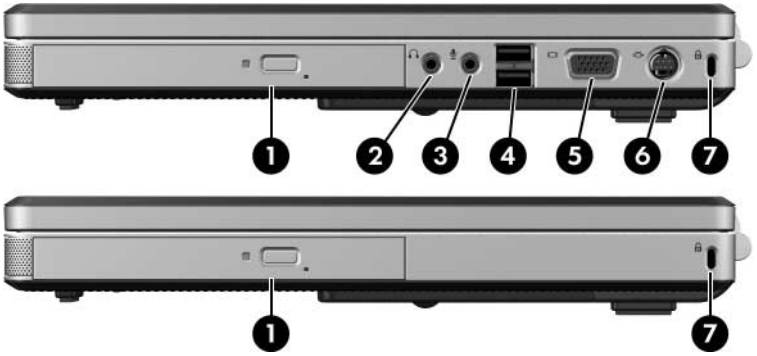
Right-Side Components, HP Pavilion dv4200

Table 1-2

Right-Side Components, HP Pavilion dv4200

Item	Component	Function
1	Optical drive	Supports an optical disc, such as a CD or DVD.
2	Audio-out (headphone) jack (full-featured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
3	Audio-in (microphone) jack (full-featured models only)	Connects an optional stereo microphone.
4	USB ports (full-featured models only)	Connect optional USB devices.
	✎ Number of USB ports vary by model.	
5	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
6	S-Video-out jack (full-featured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
7	Security cable slot	Attaches an optional security cable to the computer.
	✎ The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.	

The external components on the right side of the Compaq Presario V4200 and HP Compaq nx7220 are shown below and described in Table 1-3. Depending on your computer model, component locations may vary.



Right-Side Components, Compaq Presario V4200 and HP Compaq nx7220

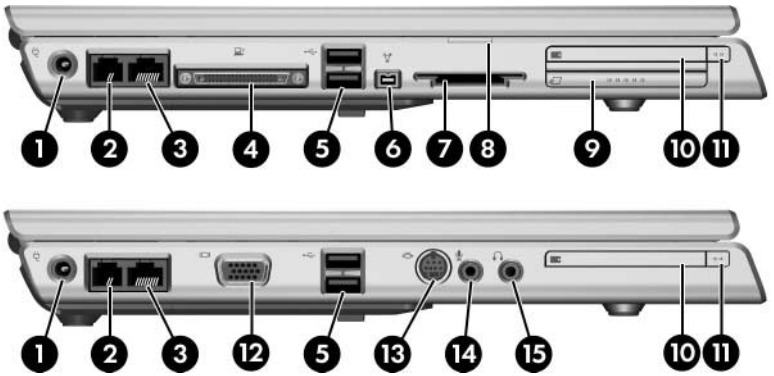
Table 1-3

Right-Side Components

Compaq Presario V4200 and HP Compaq nx7220

Item	Component	Function
1	Optical drive	Supports an optical disc, such as a CD or DVD.
2	Audio-out (headphone) jack (full-featured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
3	Audio-in (microphone) jack (full-featured models only)	Connects an optional stereo microphone.
4	USB ports (full-featured models only)	Connect optional USB devices.
	✎ Number of USB ports vary by model.	
5	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
6	S-Video-out jack (full-featured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
7	Security cable slot	Attaches an optional security cable to the computer.
	✎ The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.	

The external components on the left side of the HP Pavilion dv4200 are shown below and described in Table 1-4. Depending on your computer model, component locations may vary.



Left-Side Components, HP Pavilion dv4200

Table 1-4

Left-Side Components, HP Pavilion dv4200

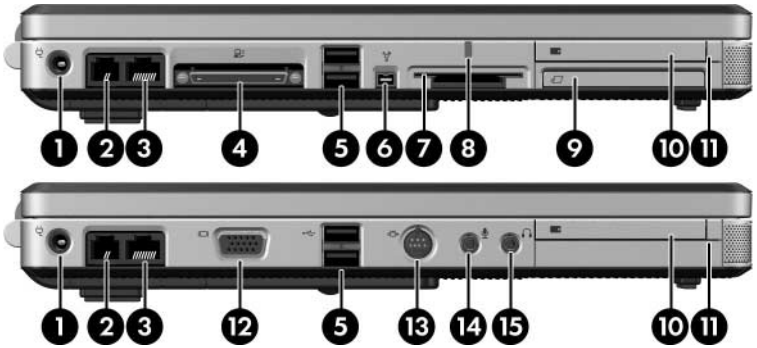
Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	RJ-11 (modem) jack	Connects a modem cable (not included).
3	RJ-45 (network) jack	Connects a network cable (not included).
4	Expansion port 2 (full-featured models only)	Connects the computer to an optional docking device.
	✎ The computer has only one expansion port. The term *expansion port 2* describes the type of expansion port.	
5	USB ports	Connect optional USB devices.

Table 1-4

Left-Side Components, HP Pavilion dv4200 *(Continued)*

Item	Component	Function
6	1394 port (4-pin; full-featured models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.
7	Digital Media Slot (full-featured models only)	Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.
8	Digital Media Slot light (full-featured models only)	On: An optional digital card is being accessed.
9	ExpressCard slot (full-featured models only)	Supports an optional ExpressCard.
10	PC Card slot	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.
11	PC Card eject button	Ejects PC Cards from the PC Card slot.
12	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
13	S-Video-out jack (full-featured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
14	Audio-in (microphone) jack (full-featured models only)	Connects an optional stereo microphone.
15	Audio-out (headphone) jack (defeatured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.

The external components on the left side of the Compaq Presario V4200 and HP Compaq nx7220 are shown below and described in Table 1-5. Depending on your computer model, component locations may vary.



Left-Side Components, Compaq Presario V4200 and HP Compaq nx7220

Table 1-5

Left-Side Components

Compaq Presario V4200 and HP Compaq nx7220

Item	Component	Function
1	Power connector	Connects the AC adapter cable.
2	RJ-11 (modem) jack	Connects a modem cable (not included).
3	RJ-45 (network) jack	Connects a network cable (not included).
4	Expansion port 2 (full-featured models only)	Connects the computer to an optional docking device.
5	USB ports	Connect optional USB devices.
	✎ Number of USB ports vary by model.	

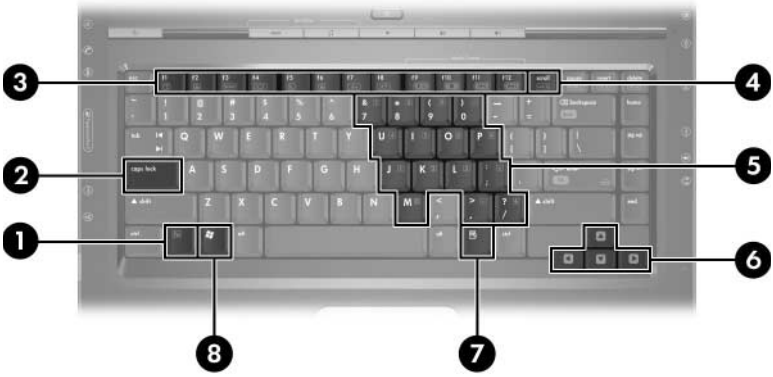
Table 1-5

Left-Side Components

Compaq Presario V4200 and HP Compaq nx7220 *(Continued)*

Item	Component	Function
6	1394 port (4-pin; full-featured models only)	Connects an optional 1394a device such as a scanner, a digital camera, or a digital camcorder.
7	Memory Reader (full-featured models only)	Supports the following optional digital cards: SD (Secure Digital) Memory Card, SD I/O Card, Memory Stick, Memory Stick Pro, MultiMediaCard, xD-Picture Card, and SmartMedia.
8	Memory Reader light (full-featured models only)	On: An optional digital card is being accessed.
9	ExpressCard slot (full-featured models only)	Supports an optional ExpressCard.
10	PC Card slot	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.
11	PC Card eject button	Ejects PC Cards from the PC Card slot.
12	Monitor port (full-featured models only)	Connects an optional VGA monitor or projector.
13	S-Video-out jack (defeatured models only)	Connects the video function of an optional S-Video device, such as a television, VCR, or video capture card.
14	Audio-in (microphone) jack (defeatured models only)	Connects an optional stereo microphone.
15	Audio-out (headphone) jack (defeatured models only)	Connects an optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.

The standard keyboard components of the computer are shown below and described in Table 1-6.



Standard Keyboard Components

Table 1-6

Standard Keyboard Components

Item	Component	Function
1	**fn** key	Combines with other keys to perform system tasks as hotkeys. For example, pressing **fn+f7** decreases screen brightness.
2	**caps lock** key	Enables caps lock and turns on the caps lock light.
3	**f1** to **f12** keys (12)	Perform system and application tasks. When combined with **fn**, function keys perform additional tasks as hotkeys.
4	**num lock** key	Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.
5	Embedded numeric keypad keys (15)	Can be used like the keys on an external numeric keypad.
6	Arrow keys	Move the cursor around the screen.
7	Windows applications key	Displays a shortcut menu for items beneath the pointer.
8	Windows logo key	Displays the Microsoft Windows Start menu.

The top components on HP Pavilion dv4200 models are shown below and described in Table 1-7.

Top Components, HP Pavilion dv4200 Models

Table 1-7

Top Components, HP Pavilion dv4200

Item	Component	Function
1	Power light	■ On: Computer is turned on. ■ Blinking: Computer is in standby. ■ Off: Computer is off or in hibernation.
2	Power button	When the computer is ■ Off, press to start the computer. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation.

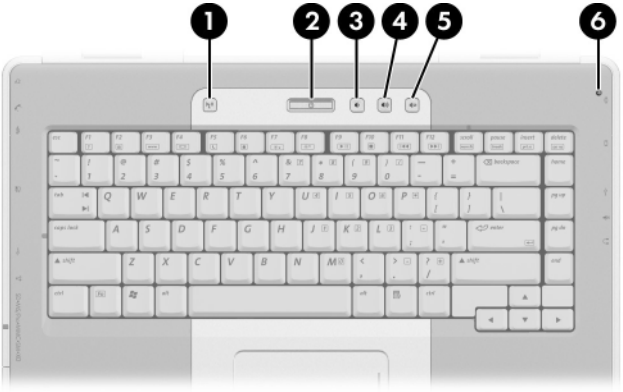
✎ If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the computer.

Table 1-7

Top Components, HP Pavilion dv4200 *(Continued)*

Item	Component	Function
3	Quick Launch buttons (select models only)	Launch default multimedia, digital imaging, or music applications (vary by model).
4	Volume mute button	Mutes or restores volume.
5	Wireless light (select models only)	On: One or more internal wireless devices have been turned on.
	✎ To establish a wireless connection, a wireless network must already be set up.	
6	Wireless button (select models only)	Turns the wireless functionality on or off, but does not create a wireless connection.
	✎ To establish a wireless connection, a wireless network must already be set up.	
7	Volume down button	Decreases system volume.
8	Volume up button	Increases system volume.
9	Display switch	Initiates standby when the computer is closed.

The top components on Compaq Presario V4200 and HP Compaq nx7220 models are shown below and described in Table 1-8.



Top Components, Compaq Presario V4200 Models and HP Compaq nx7220

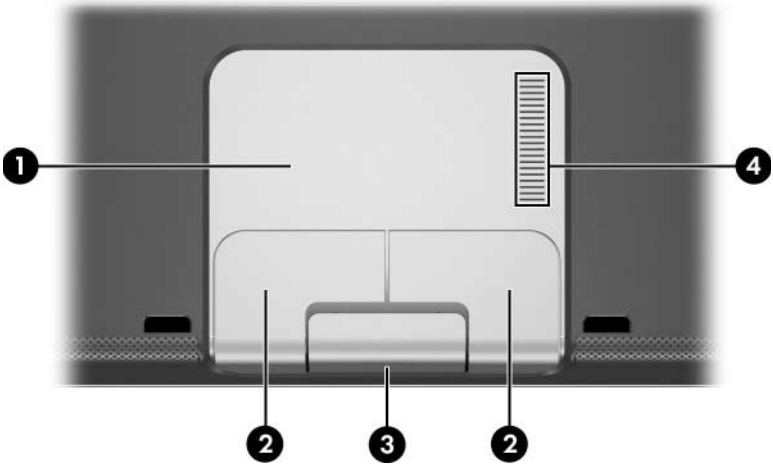
Table 1-8

Top Components

Compaq Presario V4200 Models and HP Compaq nx7220

Item	Component	Function
1	Wireless button (select models only)	Turns the wireless functionality on or off, but does not create a wireless connection.
	✎ To establish a wireless connection, a wireless network must already be set up.	
2	Power button	When the computer is ■ Off, press to start the computer. ■ On, briefly press to initiate hibernation. ■ In standby, briefly press to resume from standby. ■ In hibernation, briefly press to restore from hibernation.
	✎ If the system has stopped responding and Windows shutdown procedures cannot be used, press and hold for at least 4 seconds to turn off the computer.	
3	Volume down button	Decreases system volume.
4	Volume mute button Volume mute light	Mutes or restores volume. On: Volume is muted.
5	Volume up button	Increases system volume.
6	Display switch	Initiates standby when the computer is closed.

The HP Pavilion dv4200 computer TouchPad components are shown below and described in Table 1-9.



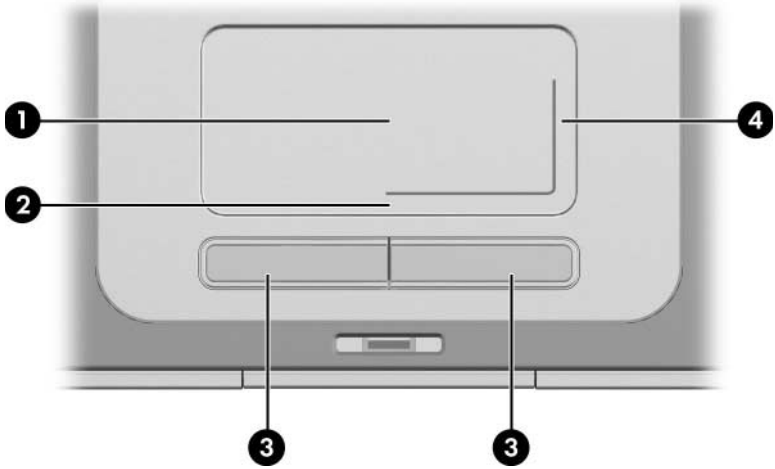
TouchPad Components, HP Pavilion dv4200

Table 1-9

TouchPad Components, HP Pavilion dv4200

Item	Component	Function
1	TouchPad	Moves the pointer.
2	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
3	Display release button	Opens the computer.
4	TouchPad vertical scroll zone	Scrolls up or down.

The Compaq Presario V4200 and HP Compaq nx7220 computer TouchPad components are shown below and described in Table 1-10.



TouchPad Components, Compaq Presario V4200

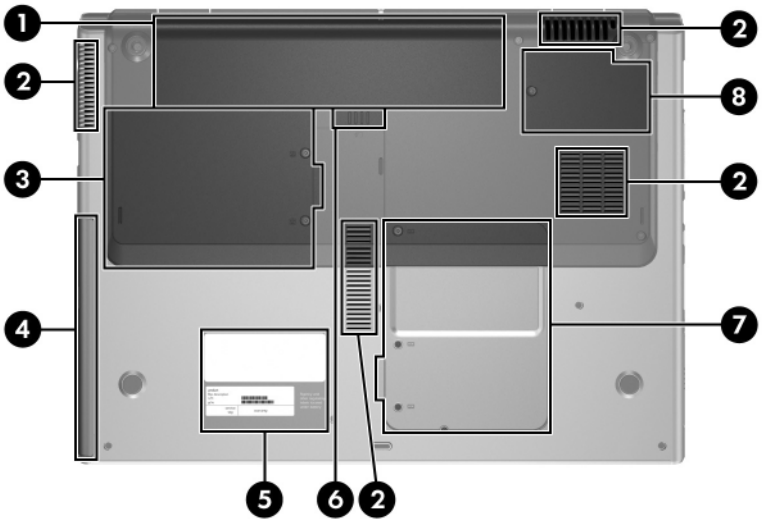
Table 1-10

TouchPad Components

Compaq Presario V4200 and HP Compaq nx7220

Item	Component	Function
1	TouchPad	Moves the pointer.
2	TouchPad horizontal scroll zone	Scrolls left or right.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad vertical scroll zone	Scrolls up or down.

The external components on the bottom of the computer are shown below and described in Table 1-11.



Bottom Components

Table 1-11

Bottom Components

Item	Component	Function
1	Battery bay	Holds a battery pack.
2	Vents (4)	Provide airflow to cool internal components.
	⚠ To prevent overheating, do not obstruct vents. Do not allow a hard surface, such as a printer, or a soft surface, such as pillows or thick rugs or clothing, to block airflow.	
3	Hard drive bay	Holds the internal hard drive.

Table 1-11

Bottom Components *(Continued)*

Item	Component	Function
4	Optical drive	Supports an optical disc, such as a CD or DVD.
5	Labels area	Contains the serial number and other information labels.
6	Battery pack release latch	Releases a battery pack from the battery bay.
7	Memory module cover	Contains 2 memory module slots that support replaceable memory modules. The number of preinstalled memory modules varies by computer model.
	Mini PCI compartment cover	Holds an optional wireless LAN device (select models only).
	⚠ To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install an unauthorized device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.	
8	Thermal cover	Provides access to the heat sink and processor.

1.5 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to Section , "Illustrated Parts Catalog," to identify replacement parts, and Section , "Removal and Replacement Procedures," for disassembly steps.

The system board provides the following device connections:

- Audio
- Display
- Hard drive
- Intel Pentium M and Celeron M processors
- Keyboard
- Memory module
- Mini PCI communications devices
- PC Card
- TouchPad

CAUTION: To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left and right sides of the computer.

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to be turned on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

2

Troubleshooting

WARNING: Only authorized technicians trained by HP should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly-/module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Computer Setup

Computer Setup is a preinstalled, ROM-based utility that can be used even when the operating system is not working or will not load. If the operating system is working, the computer restarts the operating system after you exit Computer Setup.

Pointing devices are not supported in Computer Setup; you must use the keyboard to navigate and make selections.

The menu tables later in this chapter provide an overview of Computer Setup options.

Accessing Computer Setup

The information and settings in Computer Setup are accessed from the **File**, **Security**, **Tools**, and **Advanced** menus.

1. Open Computer Setup by turning on or restarting the computer. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
   - ❏ To change the language, press **f2**.
   - ❏ To view navigation information, press **f1**.
   - ❏ To return to the Computer Setup menu, press **esc**.
2. Select the **File**, **Security**, **Tools**, or **Advanced** menu.
3. To exit Computer Setup, choose one of the following:
   - ❏ To exit without saving any changes, use the arrow keys to select **File > Ignore changes and exit**, and then follow the instructions on the screen.
   - ❏ To exit and save all the settings you have entered, use the arrow keys to select **File > Save changes and exit**, and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the computer restarts.

Computer Setup Defaults

To return all settings in Computer Setup to the values that were set at the factory:

1. Open Computer Setup by turning on or restarting the computer. Press **f10** while the F10 = Based Setup message is displayed in the lower-left corner of the screen.
   - ❏ To change the language, press **f2**.
   - ❏ To view navigation information, press **f1**.
2. Use the arrow keys to select **File > Restore defaults**.
3. Select the **Restore Defaults** check box.

4. To confirm the restoration, press **f10**.
5. Select **File > Save changes and exit**, and then follow the instructions on the screen.

When the computer restarts, the factory settings are restored, and any identification information you have entered is saved.

Selecting from the File Menu

Table 2-1

File Menu

Select	To Do This
System Information	■ View identification information about the computer and any battery packs in the system. ■ View specification information about the processor, memory and cache size, video revision, keyboard controller version, and system ROM.
Save to floppy	Save system configuration settings to a diskette.
Restore to floppy	Restore system configuration settings from a diskette.
Restore defaults	Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)
Ignore changes and exit	Cancel changes entered during the current session. Then exit and restart the computer.
Save changes and exit	Save changes entered during the current session. Then exit and restart the computer. The changes you save are in effect when the computer restarts.

Selecting from the Security Menu

Table 2-2

Security Menu

Select	To Do This
Administrator password	Enter, change, or delete an HP Administrator password.
Power-on password	Enter, change, or delete a power-on password.
Password options	■ Enable/Disable stringent security. ■ Enable/Disable required password on restart.
DriveLock passwords	Enable/disable DriveLock; change a DriveLock user or master password. ✎ DriveLock Settings are accessible only when you enter Computer Setup by turning on (not restarting) the computer.
Smart Card Security	Enable/disable power-on support for smart cards. ✎ This feature is supported by select smart card readers only.
Embedded Security	■ Enable/Disable the embedded security chip. ■ Restore embedded security chip to factory settings. ■ Enable/Disable power-on authentication support. ■ Enable/Disable automatic DriveLock. ■ Reset power-on authentication credential. ✎ Embedded Security settings are accessible only if the computer is equipped with an embedded security chip.
Device security	Enable/Disable devices in the system. Enable NIC for inclusion in MultiBoot.
System IDs	Enter user-defined identification values.

Selecting from the Tools Menu

Table 2-3

Tools Menu

Select	To Do This
HDD Self Test options	Run a quick or comprehensive self-test on any hard drive in the system.
Battery Information	View information about any battery packs in the computer.
Memory Check	■ Run a self-test on memory modules in the computer. ■ View information about memory modules installed in the computer.

Selecting from the Advanced Menu

Table 2-4

Advanced Menu

Select	To Do This
Language (or press **f2**)	Change the Computer Setup language.
Boot options	■ Enable/Disable MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system. ■ Set the boot order.
Device options	■ Swap the functions of the **fn** key and left **ctrl** key. ■ Enable/Disable multiple pointing devices at startup. (To set the computer to support only a single, usually nonstandard, pointing device at startup, select **Disable**.) ■ Enable/Disable USB legacy support for a USB keyboard, mouse, and hub. When USB legacy support is enabled ❒ A USB keyboard, mouse, and hub work even when a Windows operating system is not loaded. ❒ The computer starts from a bootable hard drive, diskette drive diskette, or CD, CD-RW, or DVD inserted into a drive connected by a USB connector to the computer or to an optional docking device. ■ Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port). ■ Enable/Disable all settings in the **SpeedStep** window. (When Disable is selected, the computer runs in Battery Optimized mode.)

2.2 Troubleshooting Flowcharts

Table 2-5

Troubleshooting Flowcharts Overview

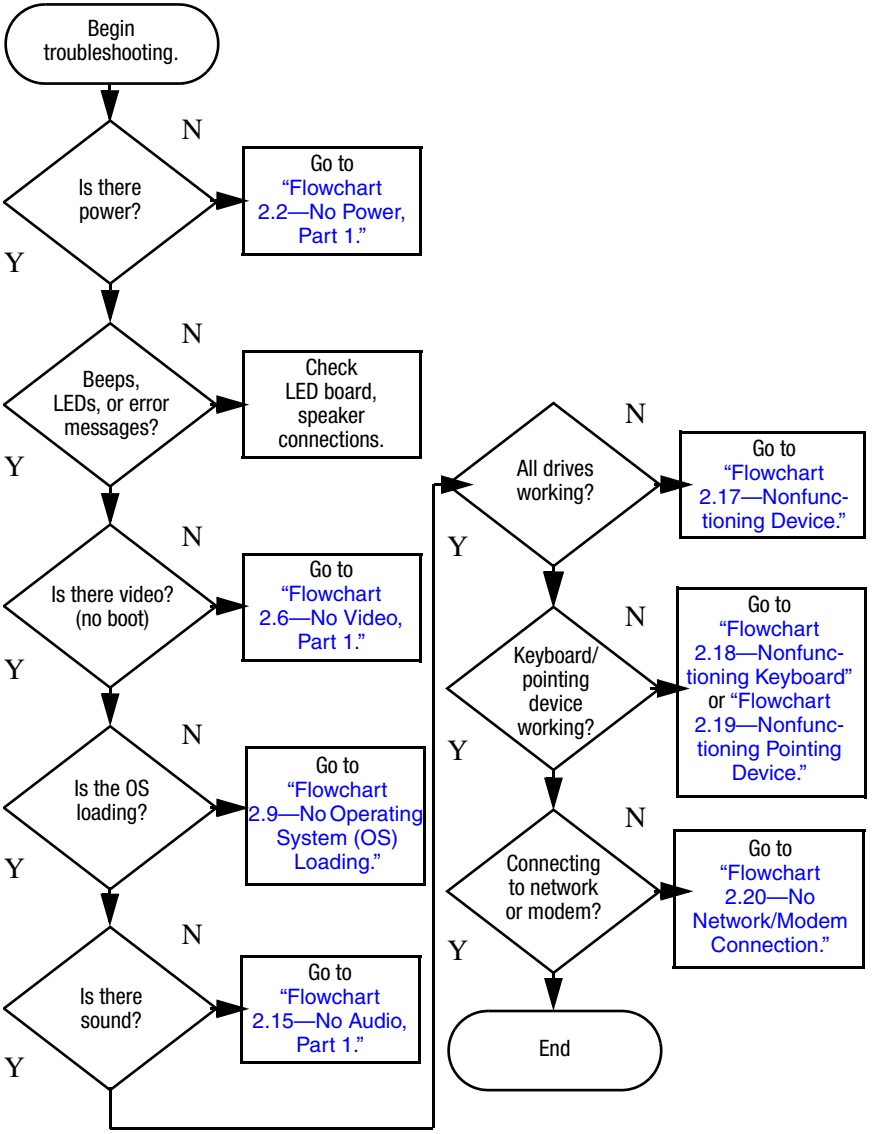
Flowchart	Description
2.1	“Flowchart 2.1—Initial Troubleshooting”
2.2	“Flowchart 2.2—No Power, Part 1”
2.3	“Flowchart 2.3—No Power, Part 2”
2.4	“Flowchart 2.4—No Power, Part 3”
2.5	“Flowchart 2.5—No Power, Part 4”
2.6	“Flowchart 2.6—No Video, Part 1”
2.7	“Flowchart 2.7—No Video, Part 2”
2.8	“Flowchart 2.8—Nonfunctioning Docking Device (if applicable)”
2.9	“Flowchart 2.9—No Operating System (OS) Loading”
2.10	“Flowchart 2.10—No OS Loading, Hard Drive, Part 1”
2.11	“Flowchart 2.11—No OS Loading, Hard Drive, Part 2”
2.12	“Flowchart 2.12—No OS Loading, Hard Drive, Part 3”
2.13	“Flowchart 2.13—No OS Loading, Diskette Drive”

Table 2-5

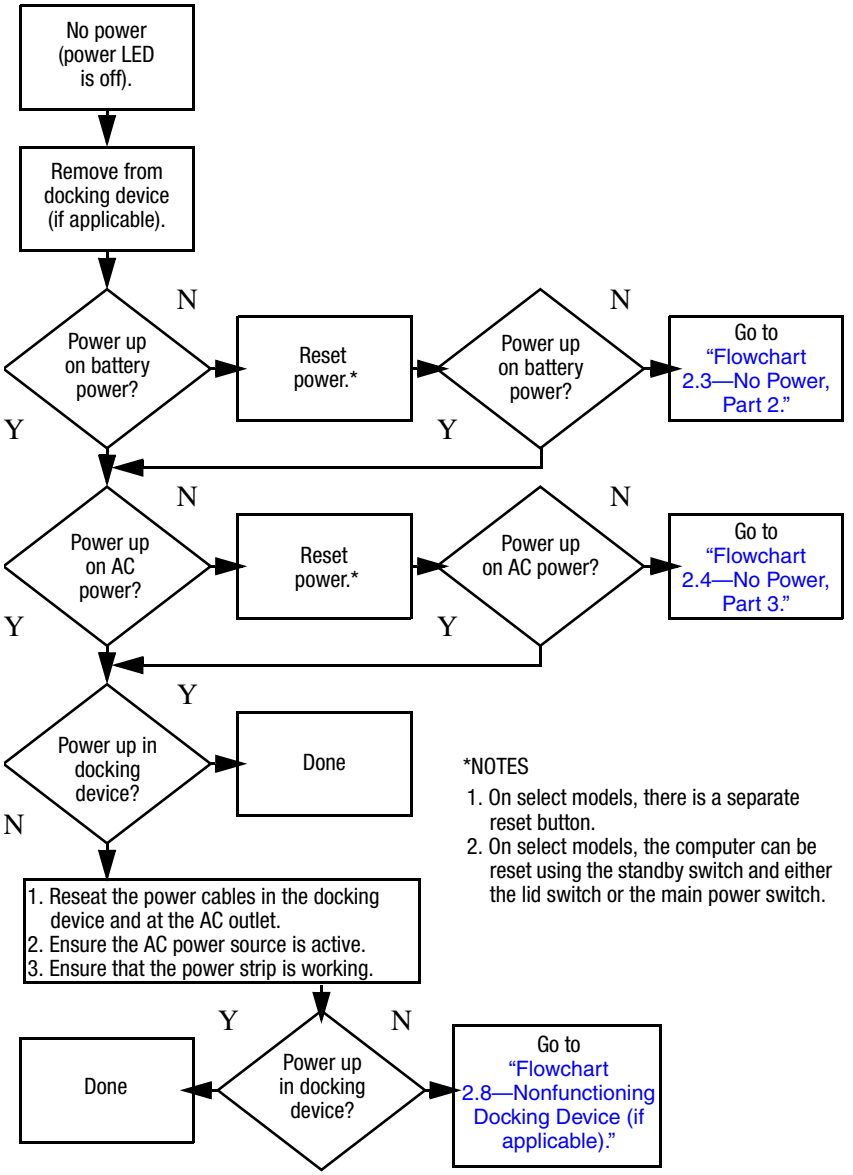
Troubleshooting Flowcharts Overview *(Continued)*

Flowchart	Description
2.14	“Flowchart 2.14—No OS Loading, Optical Drive”
2.15	“Flowchart 2.15—No Audio, Part 1”
2.16	“Flowchart 2.16—No Audio, Part 2”
2.17	“Flowchart 2.17—Nonfunctioning Device”
2.18	“Flowchart 2.18—Nonfunctioning Keyboard”
2.19	“Flowchart 2.19—Nonfunctioning Pointing Device”
2.20	“Flowchart 2.20—No Network/Modem Connection”

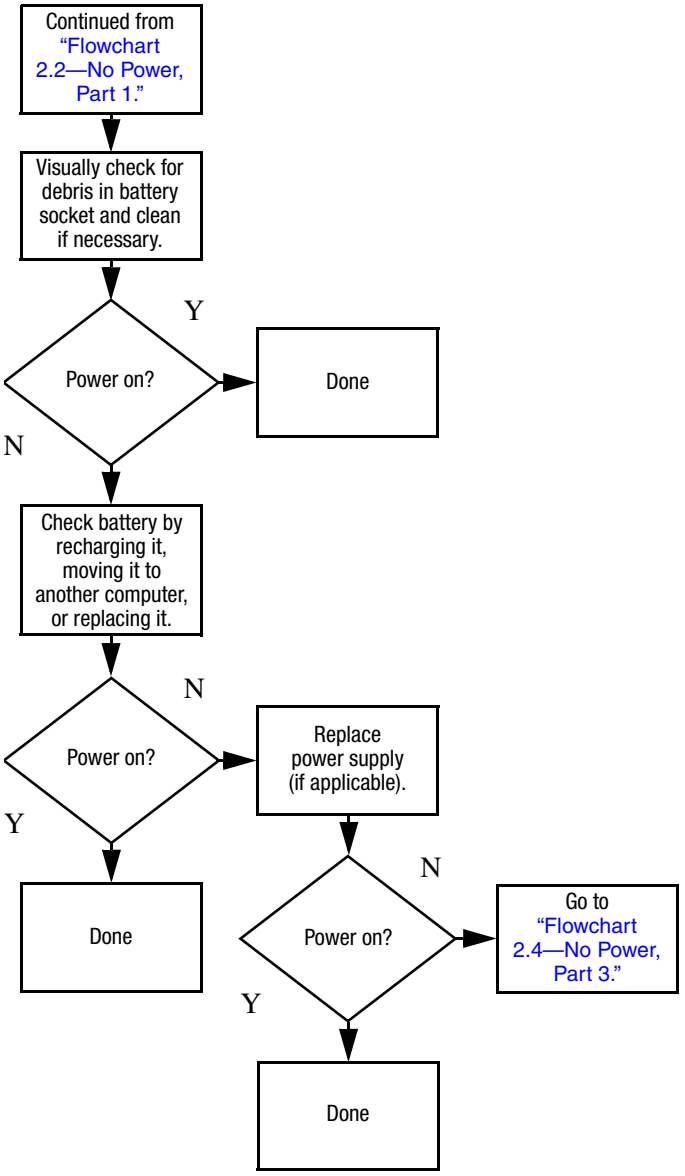
Flowchart 2.1—Initial Troubleshooting



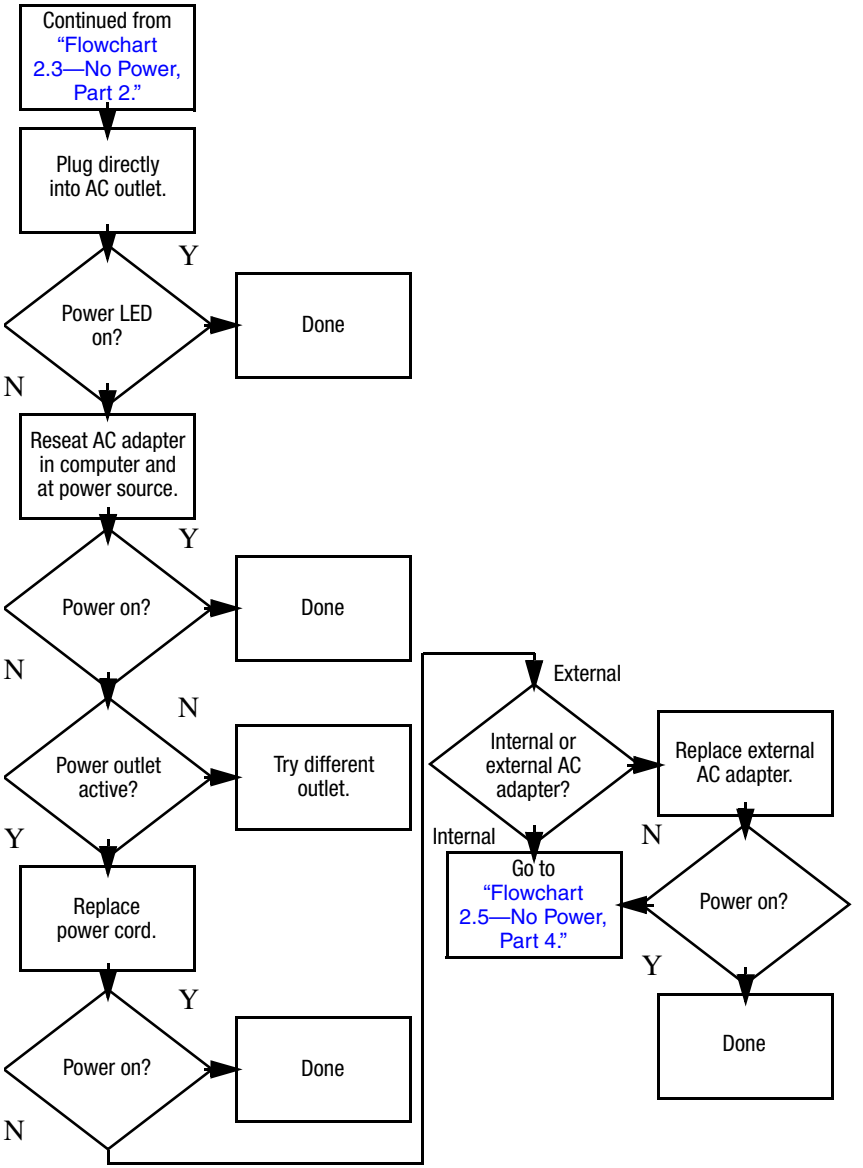
Flowchart 2.2—No Power, Part 1



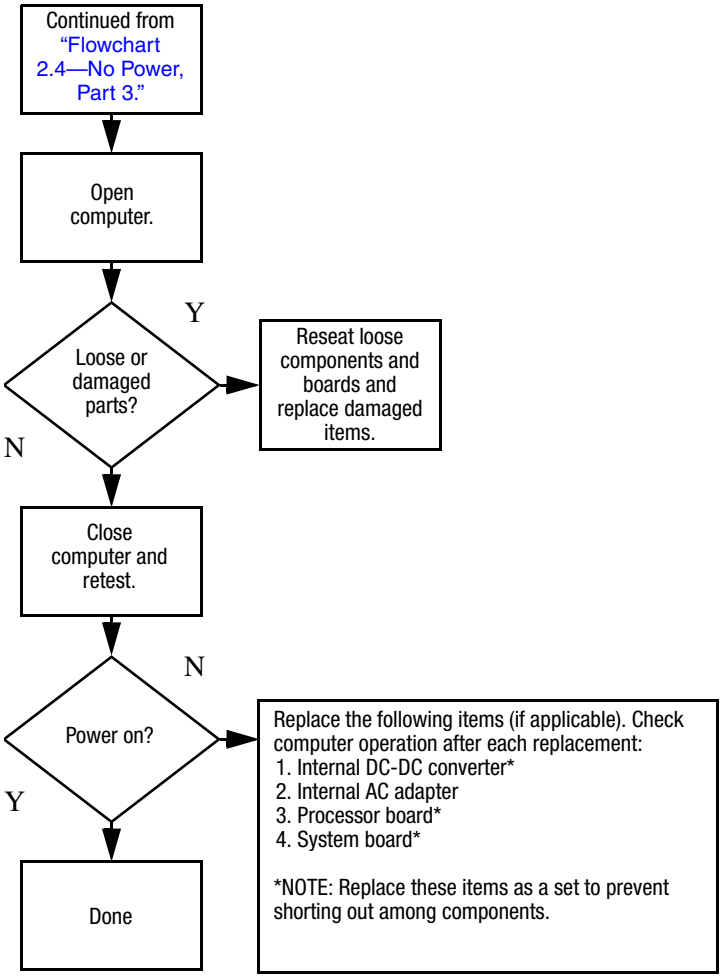
Flowchart 2.3—No Power, Part 2



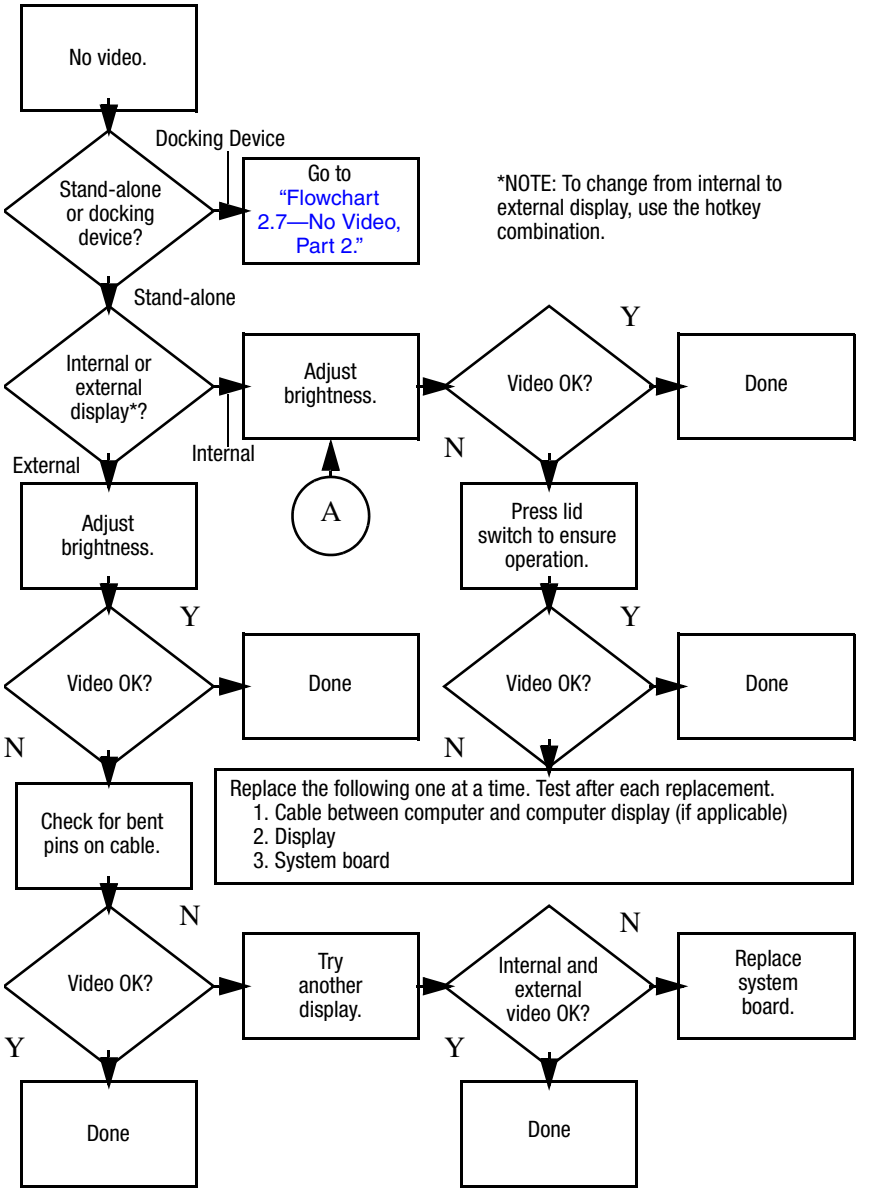
Flowchart 2.4—No Power, Part 3



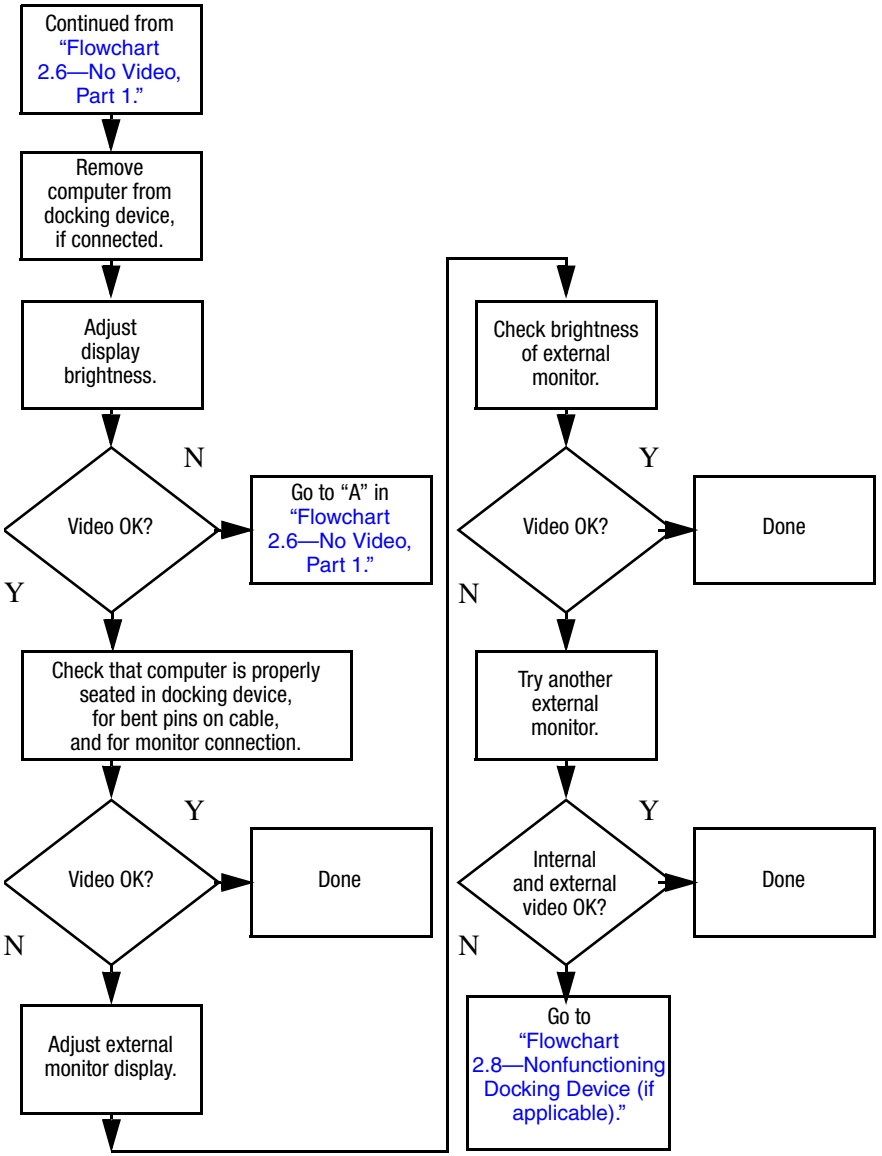
Flowchart 2.5—No Power, Part 4



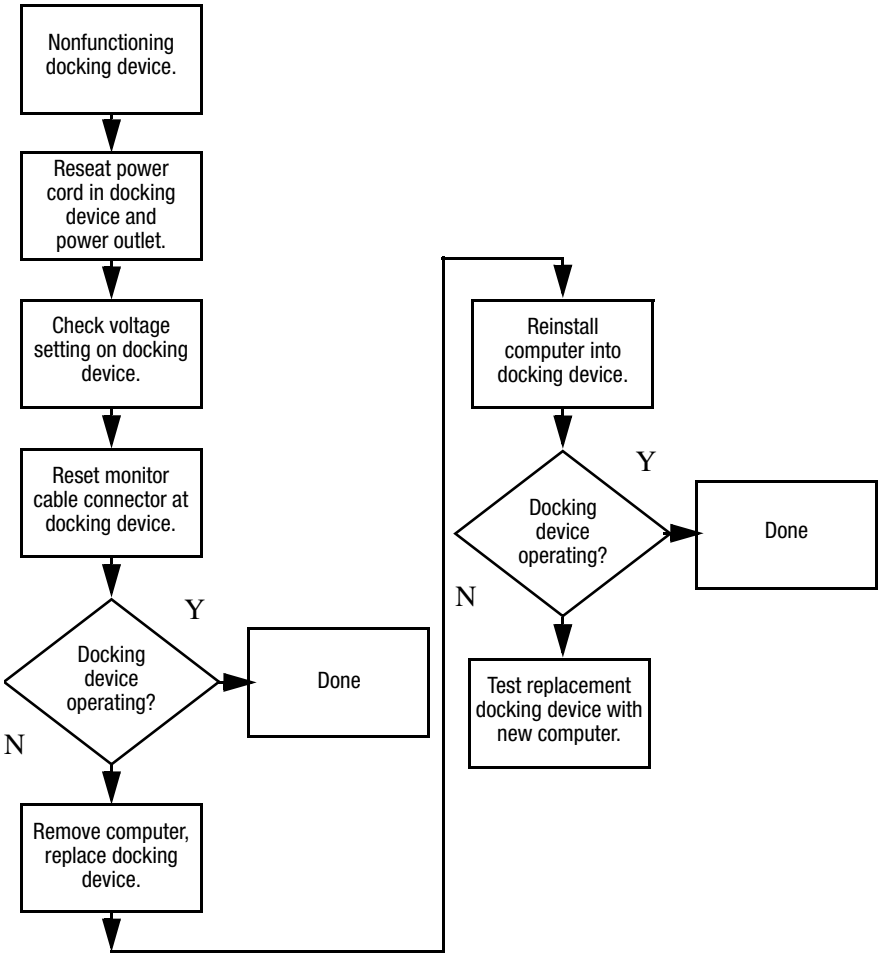
Flowchart 2.6—No Video, Part 1



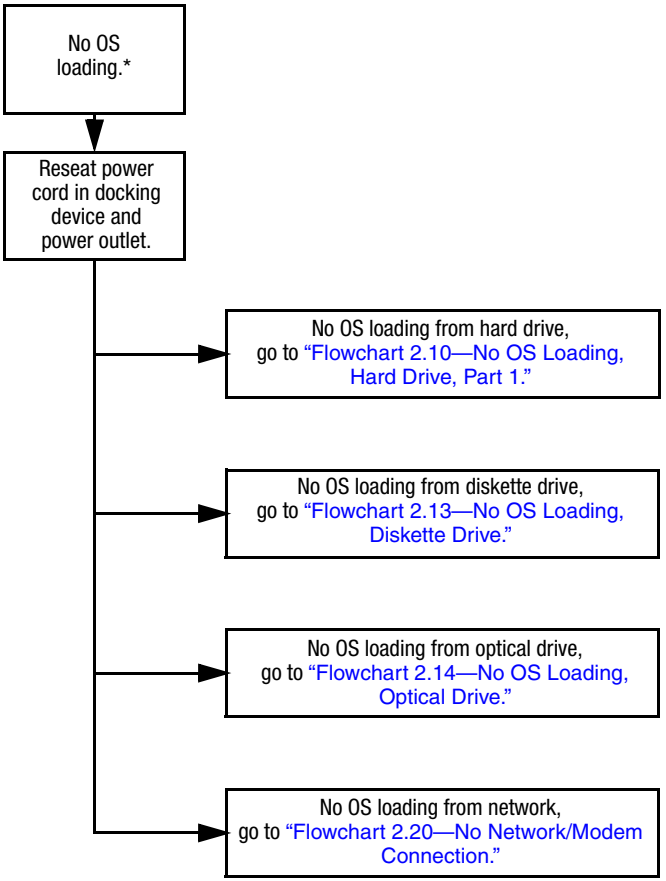
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

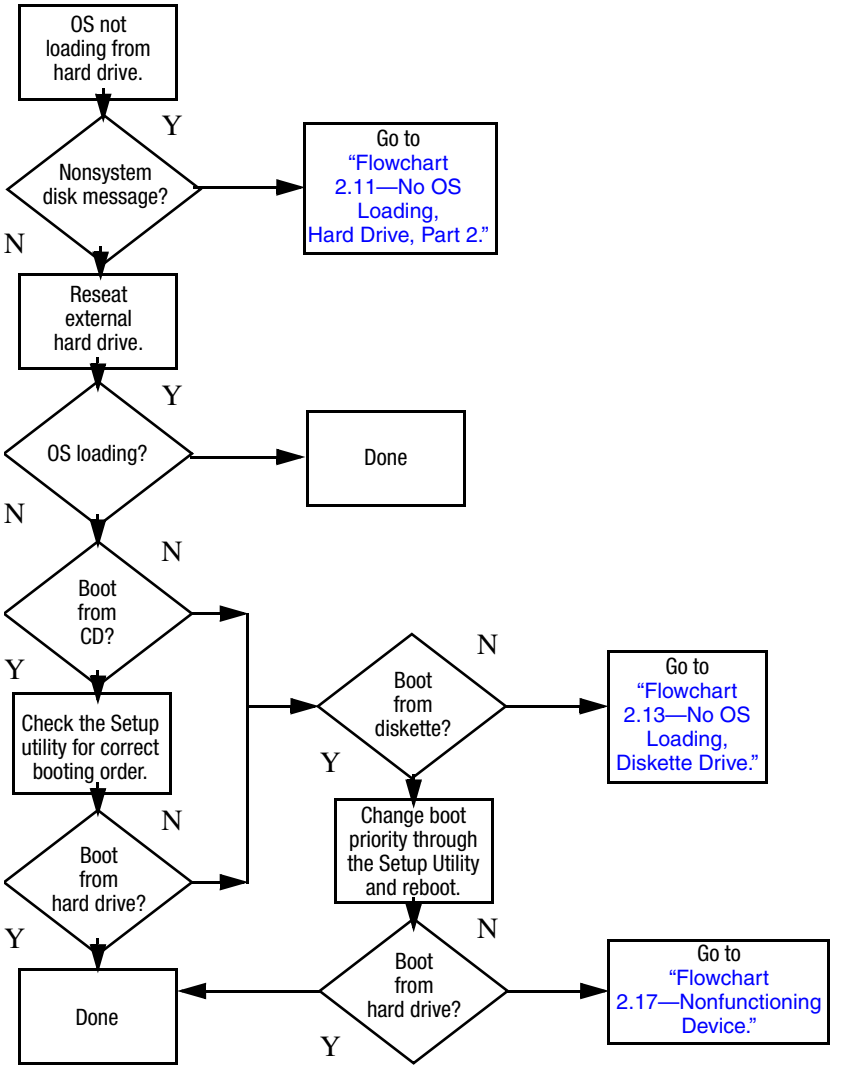


Flowchart 2.9—No Operating System (OS) Loading

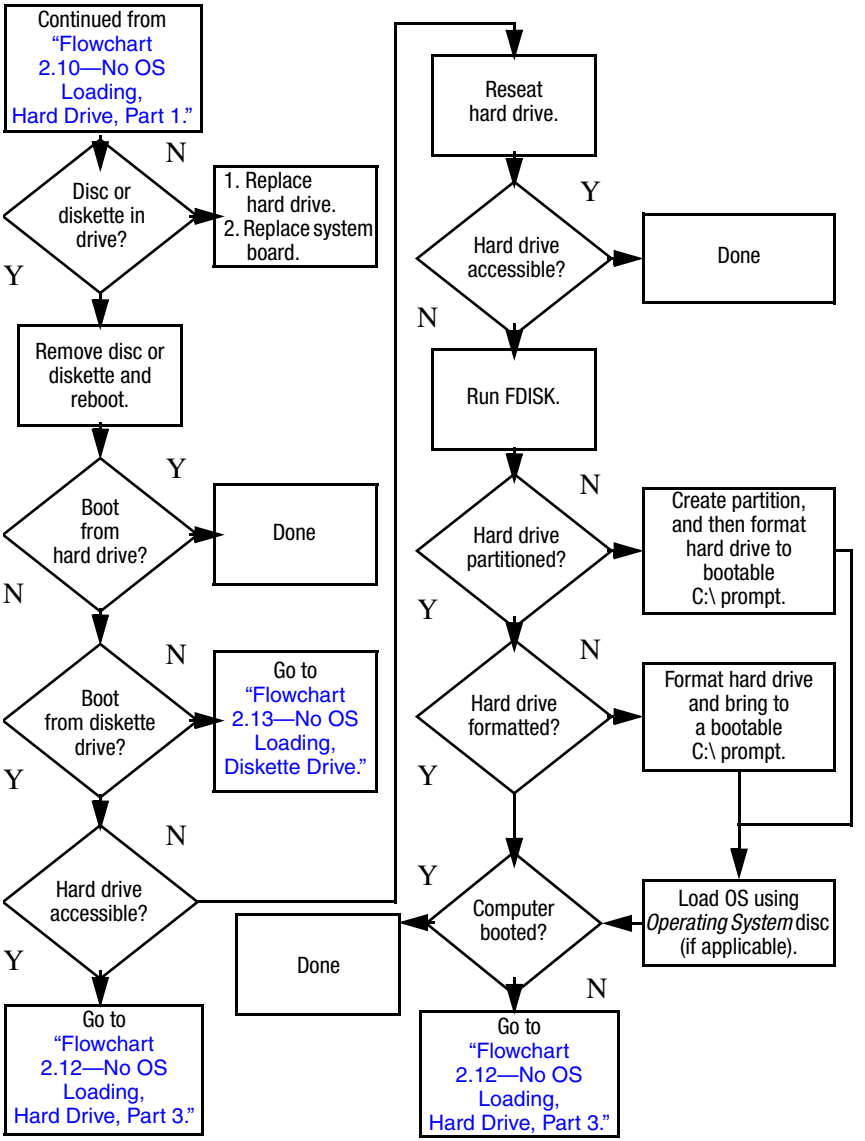


*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

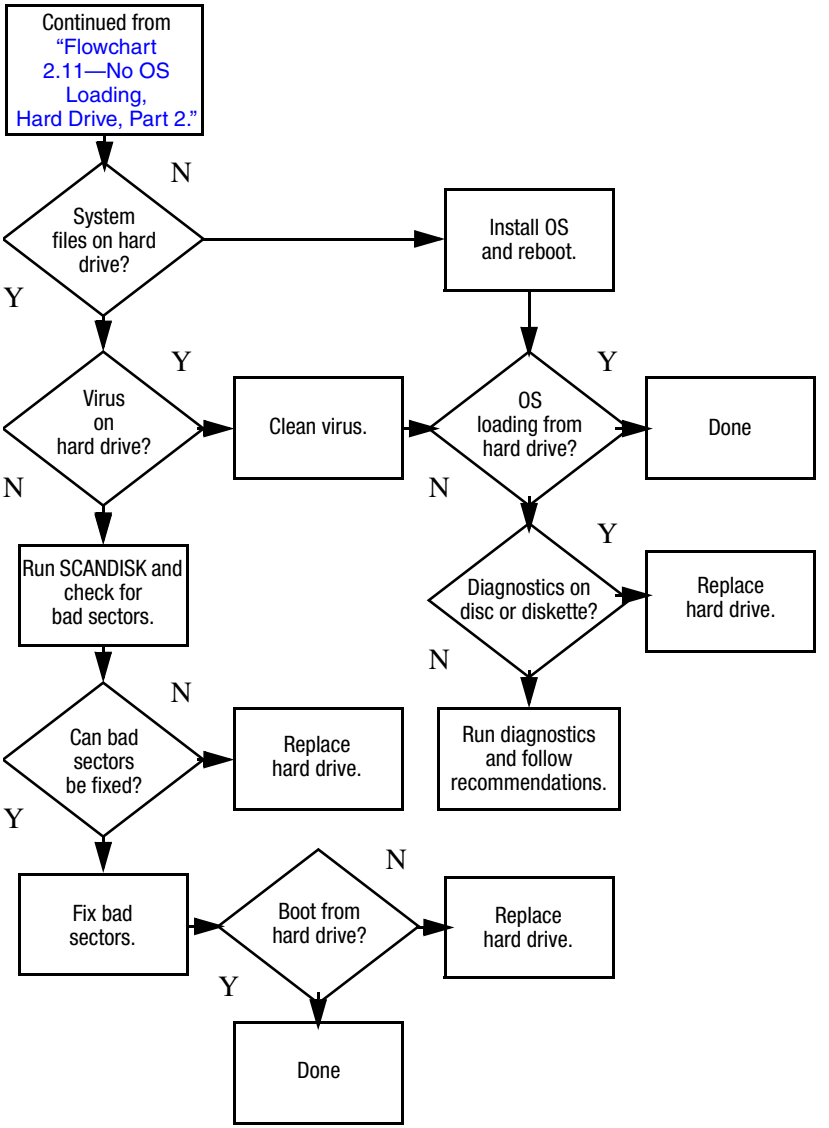
Flowchart 2.10—No OS Loading, Hard Drive, Part 1



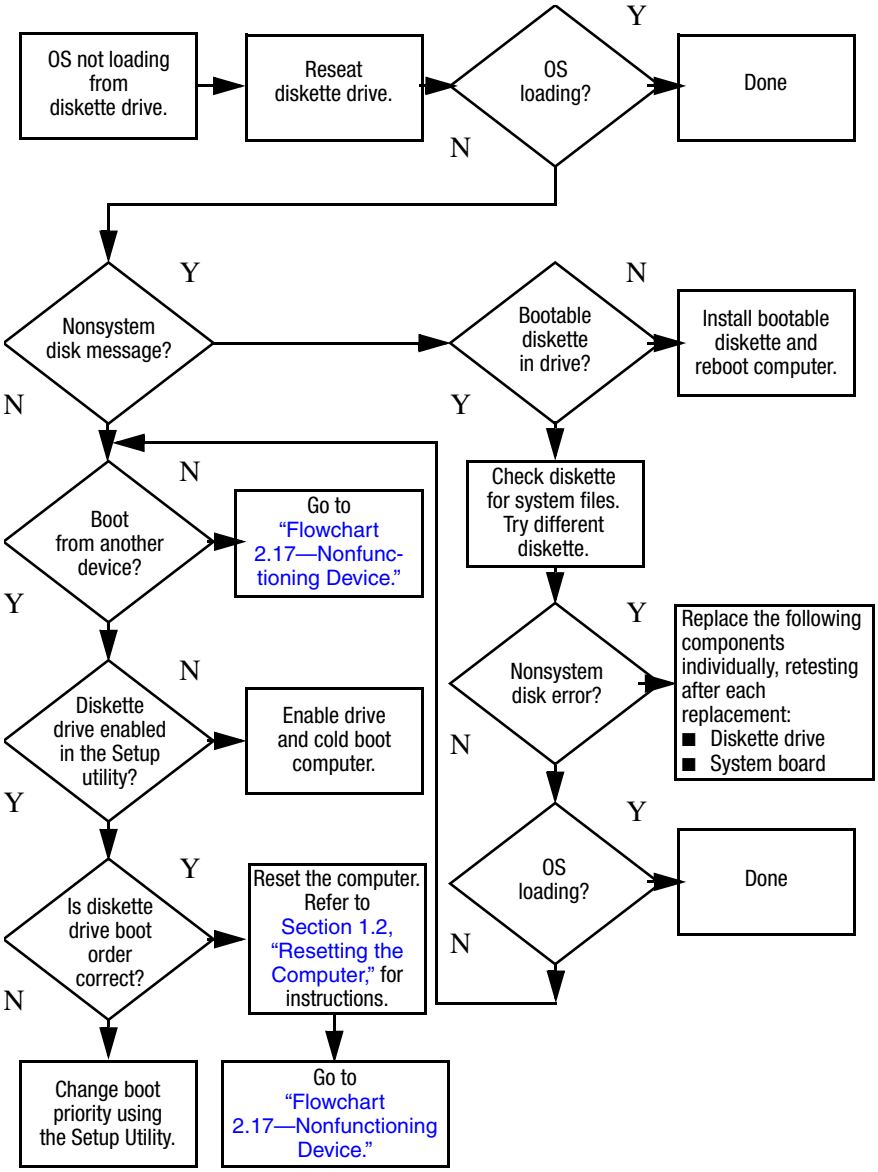
Flowchart 2.11—No OS Loading, Hard Drive, Part 2



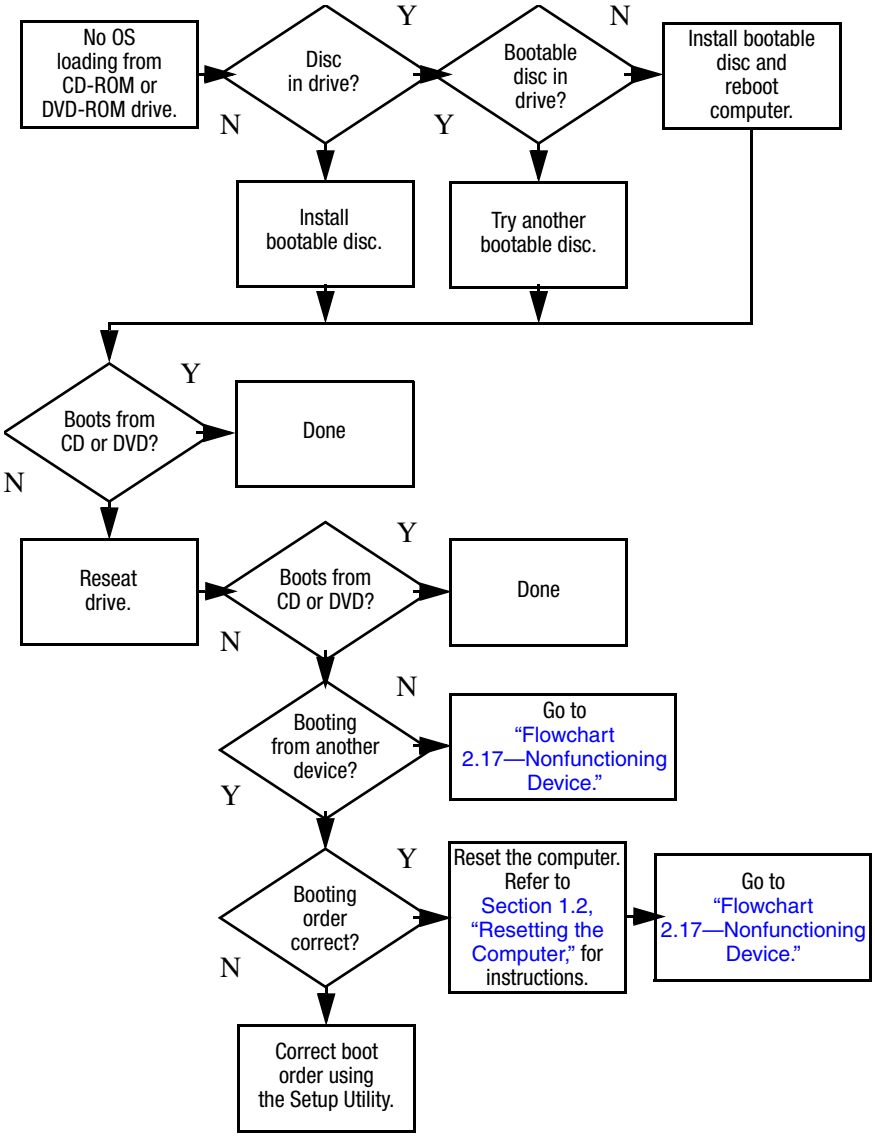
Flowchart 2.12—No OS Loading, Hard Drive, Part 3



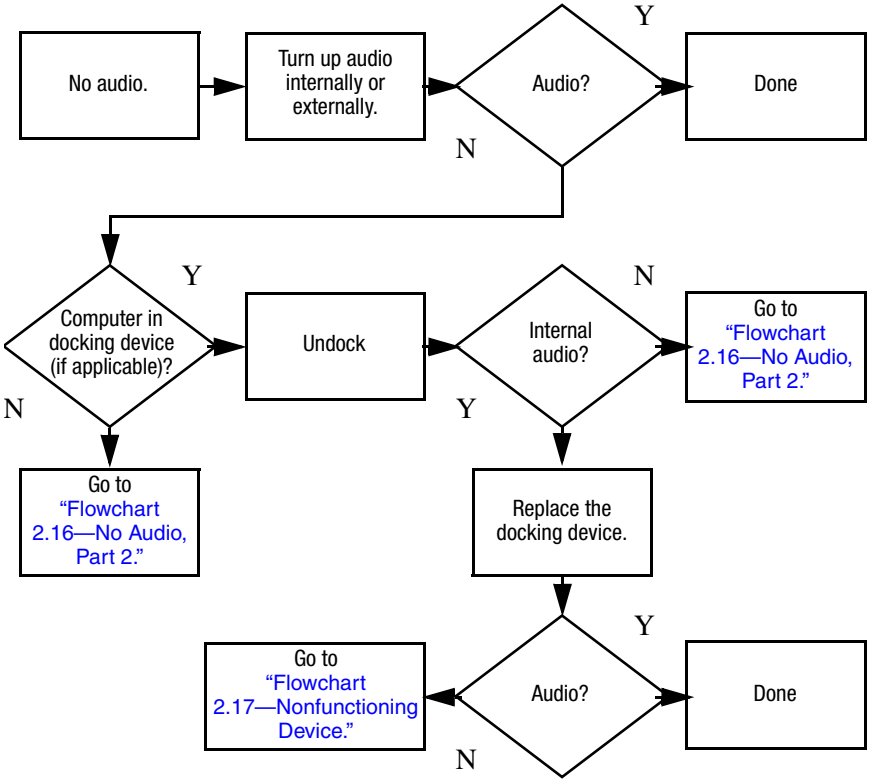
Flowchart 2.13—No OS Loading, Diskette Drive



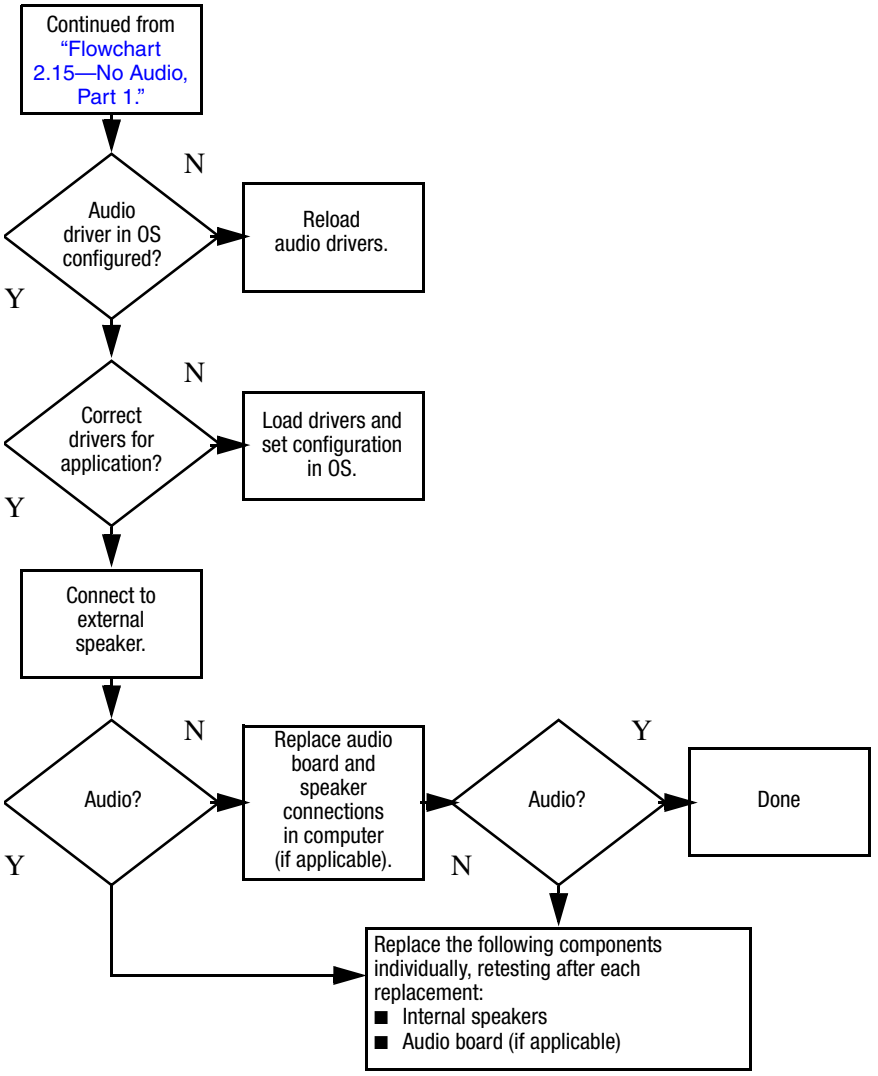
Flowchart 2.14—No OS Loading, Optical Drive



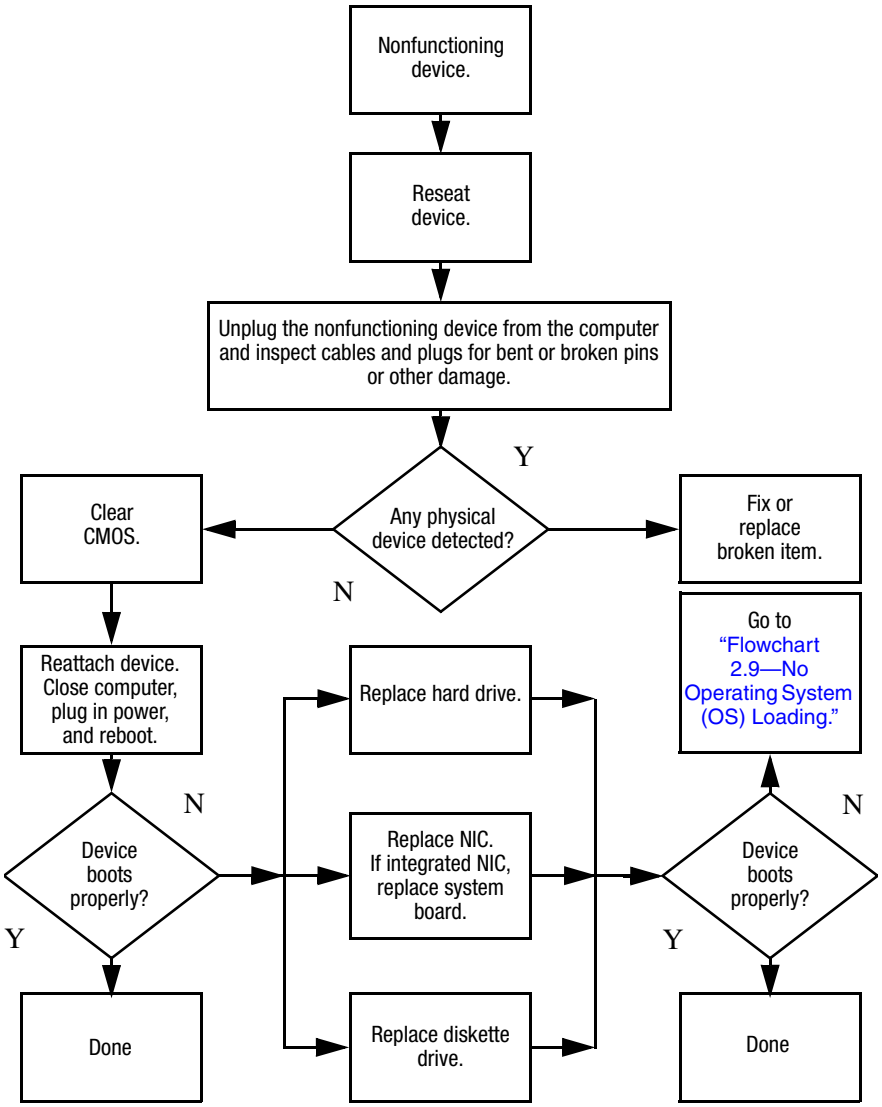
Flowchart 2.15—No Audio, Part 1



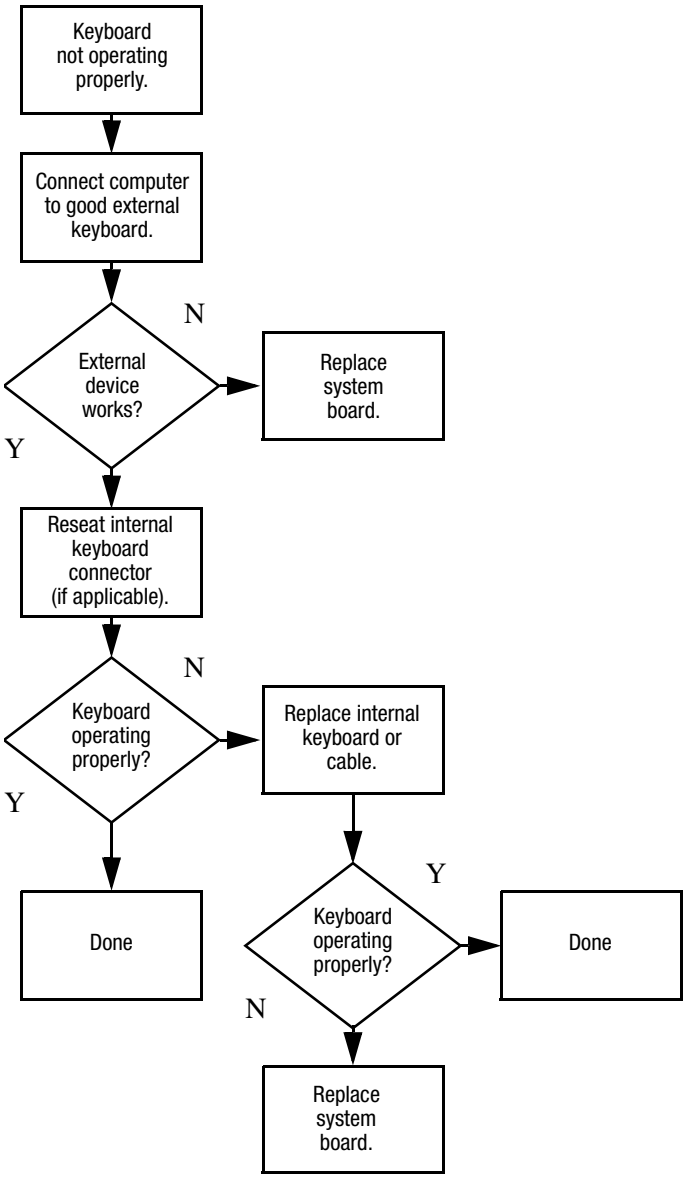
Flowchart 2.16—No Audio, Part 2



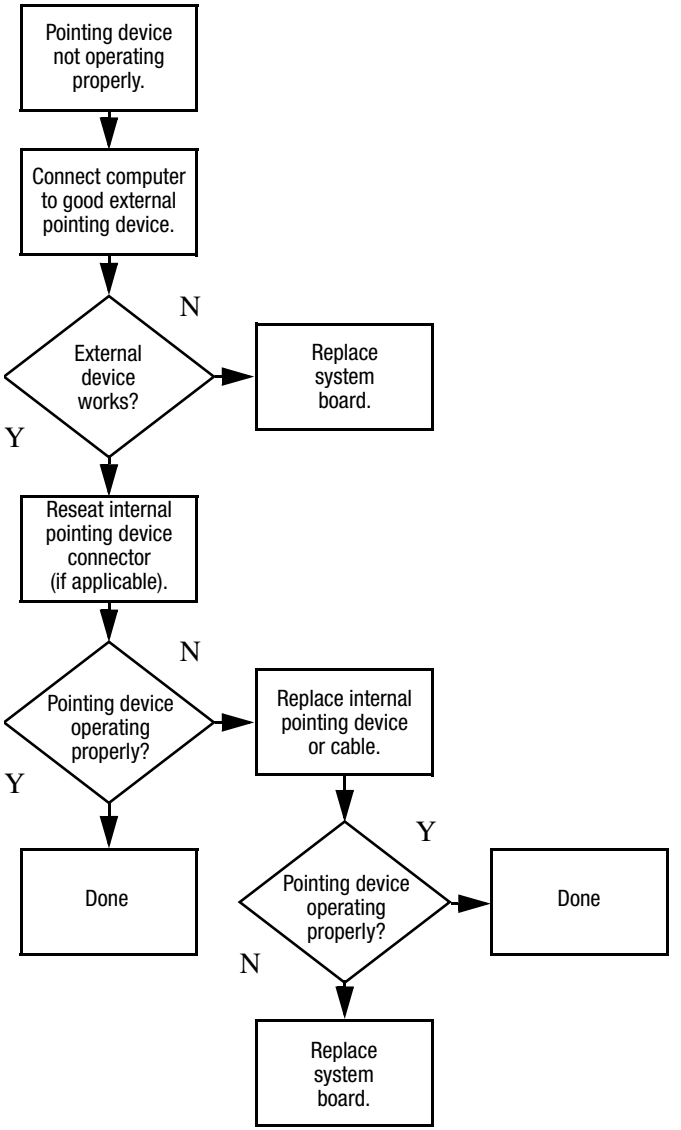
Flowchart 2.17—Nonfunctioning Device



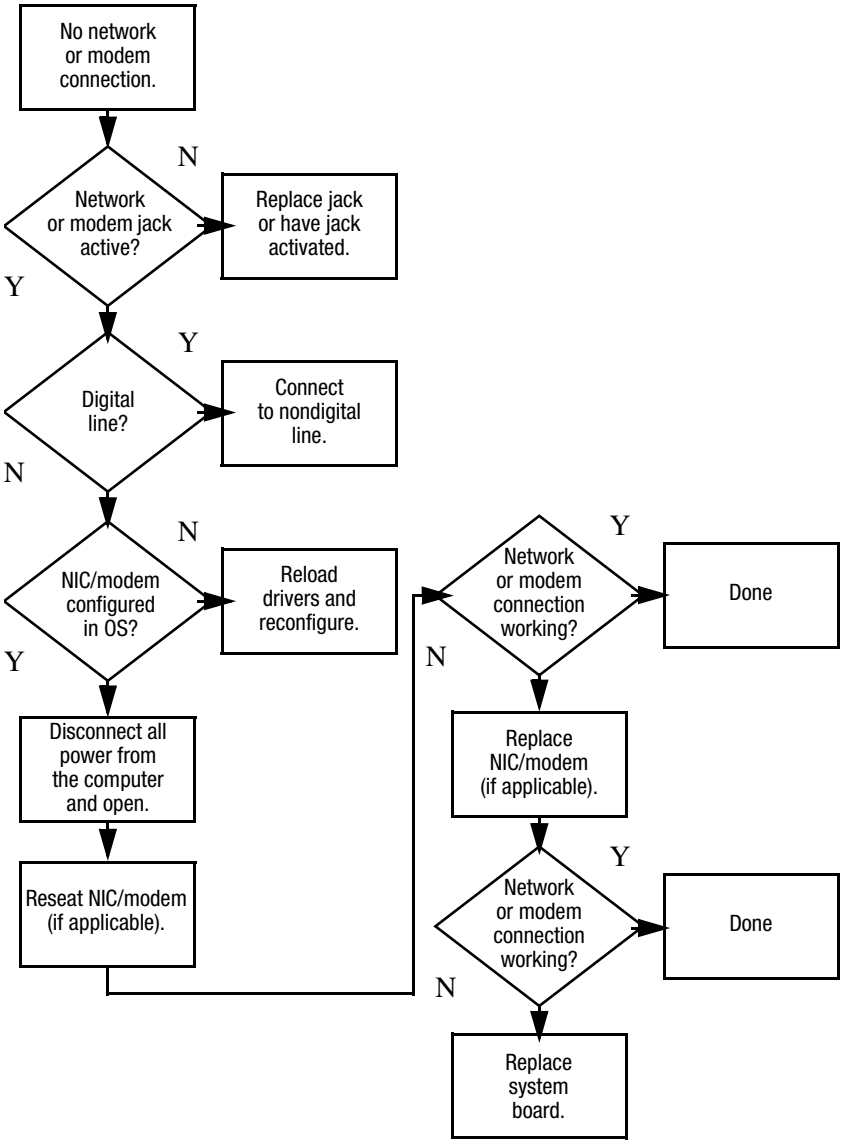
Flowchart 2.18—Nonfunctioning Keyboard



Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network/Modem Connection



3

Illustrated Parts Catalog

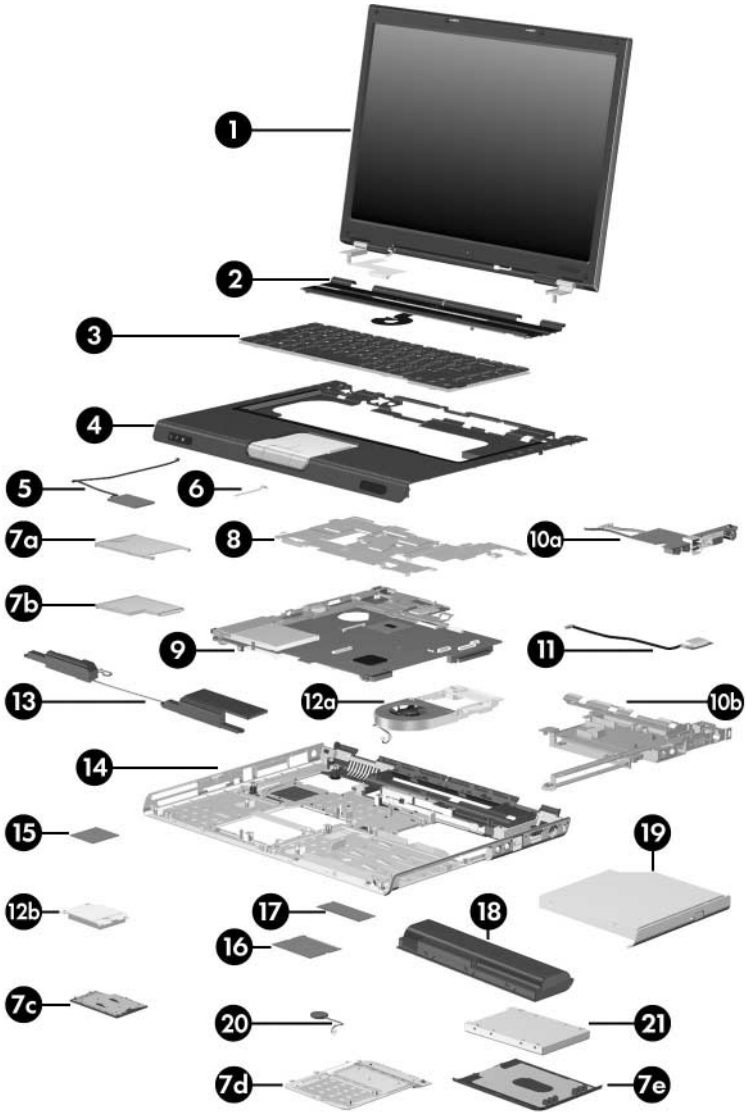
This chapter provides an illustrated parts breakdown and a reference for spare part numbers.

3.1 Serial Number Location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.

Serial Number Location

3.2 Computer Major Components

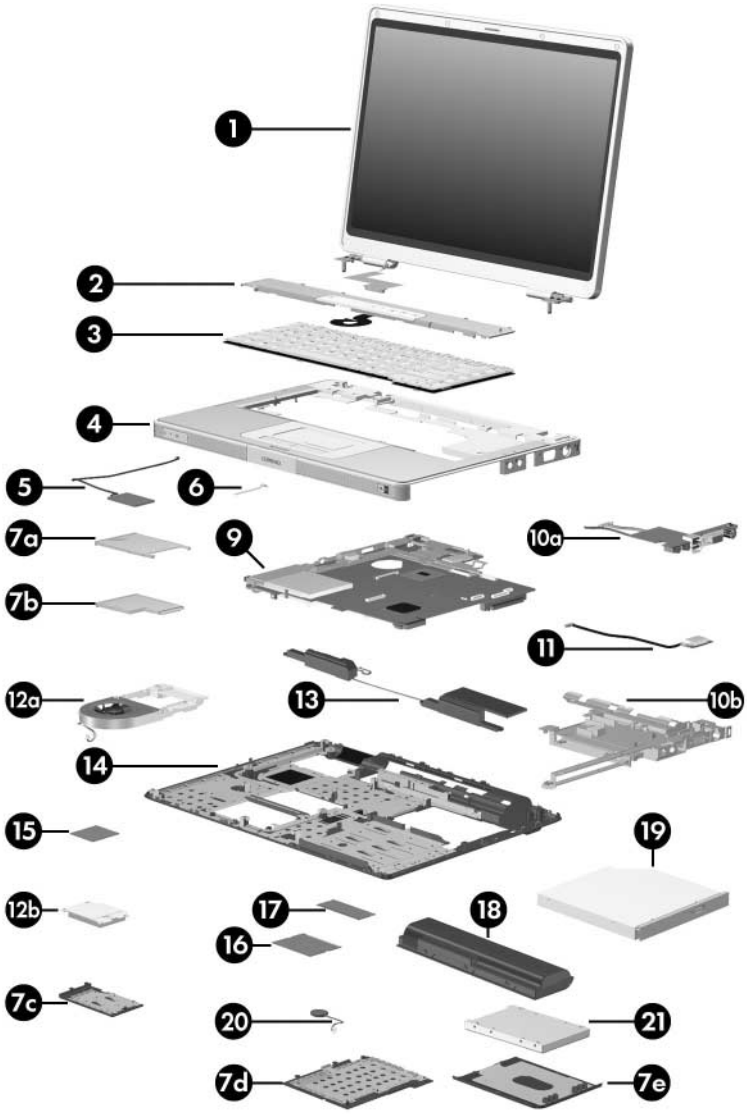


Computer Major Components, HP Pavilion dv4200

Table 3-1

Spare Parts: Computer Major Components

Item	Description	Spare Part Number
1	**Display assemblies** (include display cable, wireless antenna boards, and antenna cables)	
	For use with HP Pavilion dv4200 models	
	15.4-inch, WXGA, TFT with BrightView	383477-001
	15.4-inch, WXGA, TFT	383476-001
	For use with Compaq Presario V4200 models	
	15.4-inch, WXGA, TFT with BrightView	383479-001
	15.4-inch, WXGA, TFT	383478-001
	For use with HP Compaq nx7220 models	
	15.4-inch, WXGA, TFT with BrightView	403251-001
	15.4-inch, WXGA, TFT	403252-001
	✎ Refer to Section 3.3, “Display Assembly Subcomponents: HP Pavilion dv4200 Models” and Section 3.4, “Display Assembly Subcomponents: Compaq Presario V4200 and HP Compaq nx7220 Models” for display assembly internal component spare part number information.	
2	**Switch covers** (include LED board and LED board cable)	
	For use with HP Pavilion dv4200 models with wireless capability	403907-001
	For use with HP Pavilion dv4200 models without wireless capability	403906-001
	For use with HP Pavilion dv4200 models in Europe with wireless capability	403909-001
	For use with HP Pavilion dv4200 models in Europe without wireless capability	403908-001
	For use with Compaq Presario V4200 models with wireless capability	384619-001
	For use with Compaq Presario V4200 models without wireless capability	403004-001

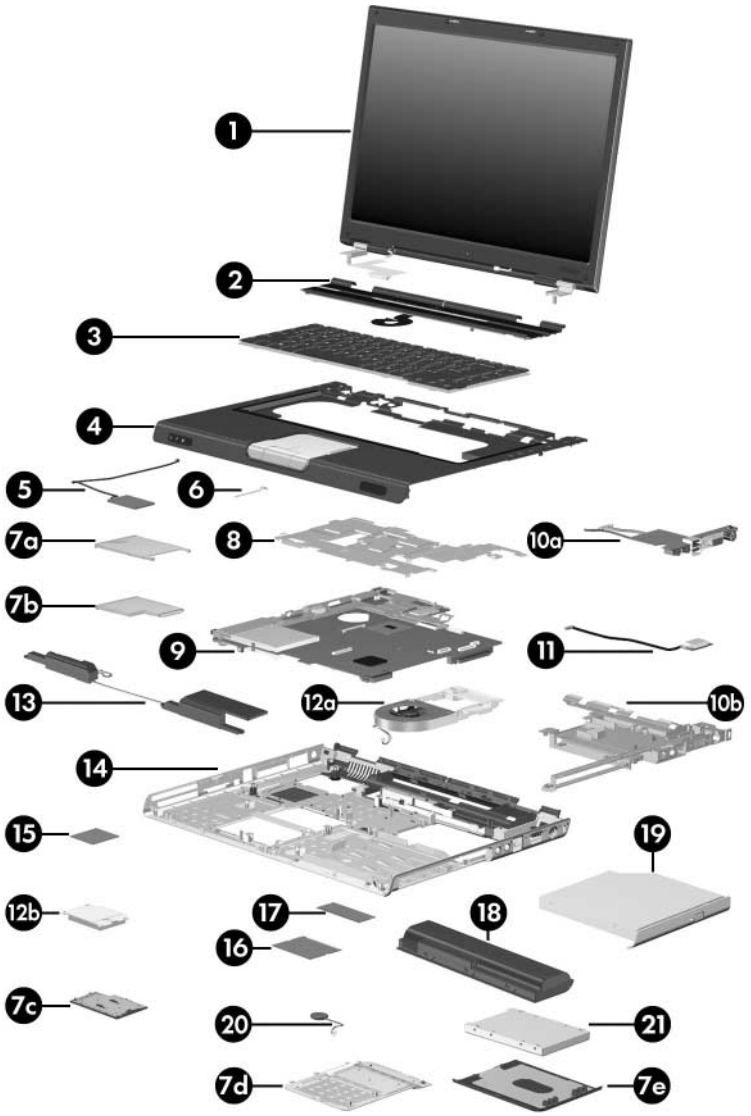


Computer Major Components, Compaq Presario V4200 and HP Compaq nx7220

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description			Spare Part Number
2	**Switch covers** *(Continued; include LED board and LED board cable)*			
	For use with HP Compaq nx7220 models with wireless capability			403005-001
	For use with HP Compaq nx7220 models with wireless capability			403006-001
3	**Keyboards**			
	For use with HP Pavilion dv4200 models:			
	Belgium	383495-181	Portugal	383495-131
	Denmark	383495-081	Saudi Arabia	383495-171
	Europe	383495-021	Spain	383495-071
	France	383495-051	Sweden/Finland	383495-B71
	French Canada	383495-121	Switzerland	383495-111
	Germany	383495-041	Taiwan	383495-AB1
	Greece	383495-151	Thailand	383495-281
	Israel	383495-BB1	Turkey	383495-141
	Italy	383495-061	United Kingdom	383495-031
	Korea	383495-AD1	United States	383495-001
	Norway	383495-091		
	For use with Compaq Presario V4200 models:			
	Denmark	384635-081	Norway	384635-091
	France	384635-051	Spain	384635-071
	French Canada	384635-121	Sweden/Finland	384635-101
	Italy	384635-061	Thailand	384635-AB1
	Korea	384635-AD1	United Kingdom	384635-031
	The Netherlands	384635-331	United States	384635-001
	For use with HP Compaq nx7220 models:			
	Japan	384635-291		

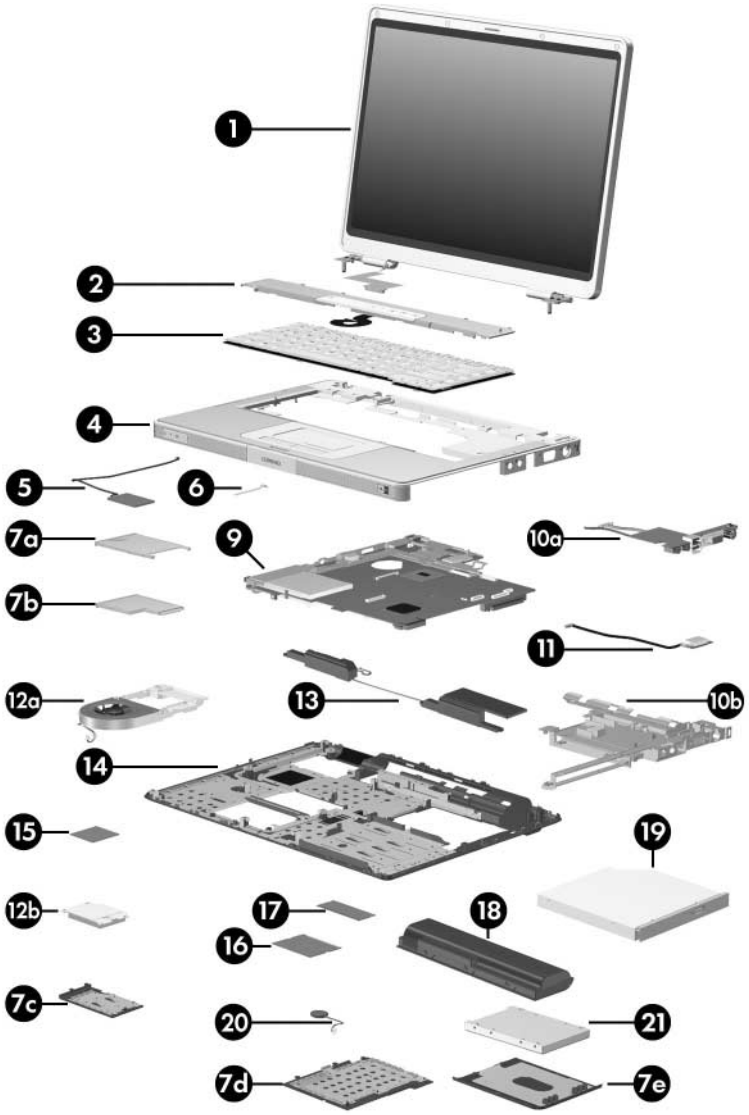


Computer Major Components, HP Pavilion dv4200

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
4	**Top covers**	
	For use with HP Pavilion dv4200 models (includes TouchPad)	403914-001
	For use with full-featured Compaq Presario V4200 models (does not include TouchPad)	397859-001
	For use with defeatured Compaq Presario V4200 models (does not include TouchPad)	404083-001
	For use with HP Compaq nx7220 models (does not include TouchPad)	403253-001
	TouchPad board, for use with Compaq Presario V4200 and HP Compaq nx7220 models (not illustrated)	391737-001
5	**Modem board** (high-speed 56K, includes modem cable)	384623-001
6	**TouchPad cable**	383467-001
	Miscellaneous Doors/Covers Kit	
	For use with HP Pavilion dv4200 models	383469-001
	For use with Compaq Presario V4200 and HP Compaq nx7220 models	384627-001
	Includes:	
7a	PC Card slot space saver	
7b	ExpressCard slot space saver	
7c	Thermal cover	
7d	Memory module compartment cover	
7e	Hard drive cover	
	Computer feet (not illustrated)	

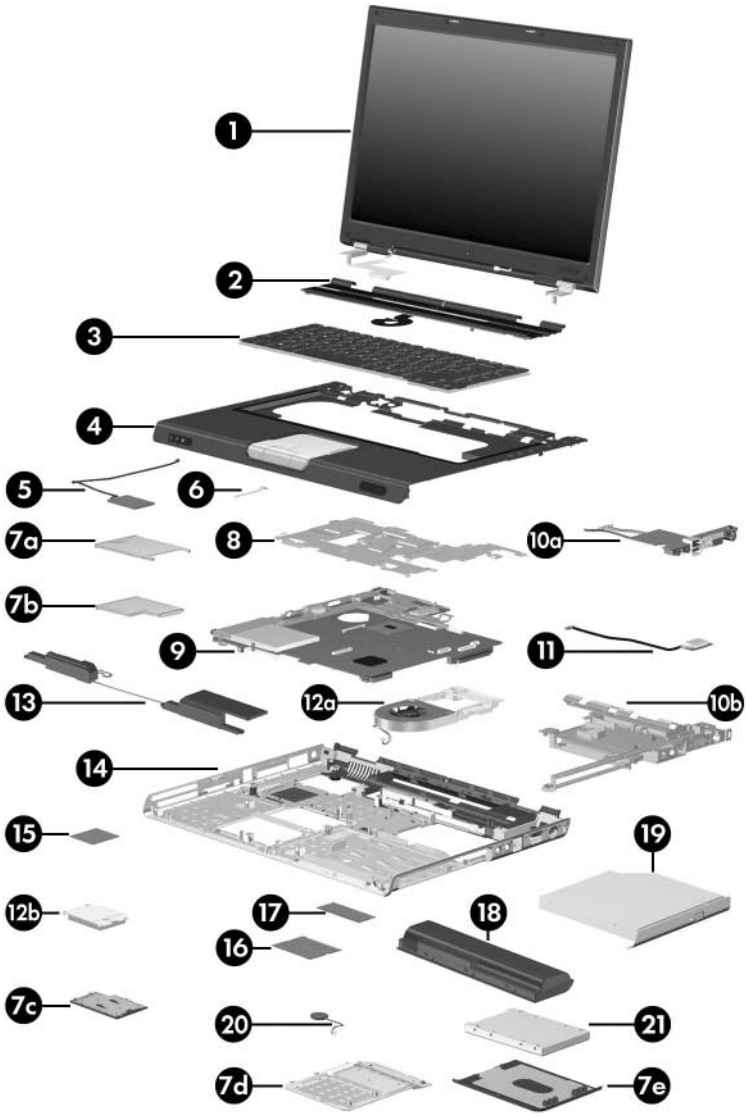


Computer Major Components, Compaq Presario V4200 and HP Compaq nx7220

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
8	**System board shields**	
	For use with HP Pavilion dv4200 models	403915-001
	For use with Compaq Presario V4200 and HP Compaq nx7220 models	384624-001
9	**System boards**	
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
	915GML	403894-001
	915PM/M25P128	403895-001
	For use with HP Compaq nx7220 models	
	915GML	403213-001
	PC Card assembly (not illustrated)	403912-001
	USB board, includes:	384625-001
10a	USB board, USB board cable, and audio board cable	
10b	USB board frame	
11	**Bluetooth® wireless modules** (include Bluetooth module cable)	
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models	397923-001
	For use with HP Compaq nx7220 models	383459-001
	Heat sink assembly, includes:	384622-001
12a	Fan	
12b	Heat sink	
	Thermal paste (not illustrated)	
13	**Speakers**	383466-001

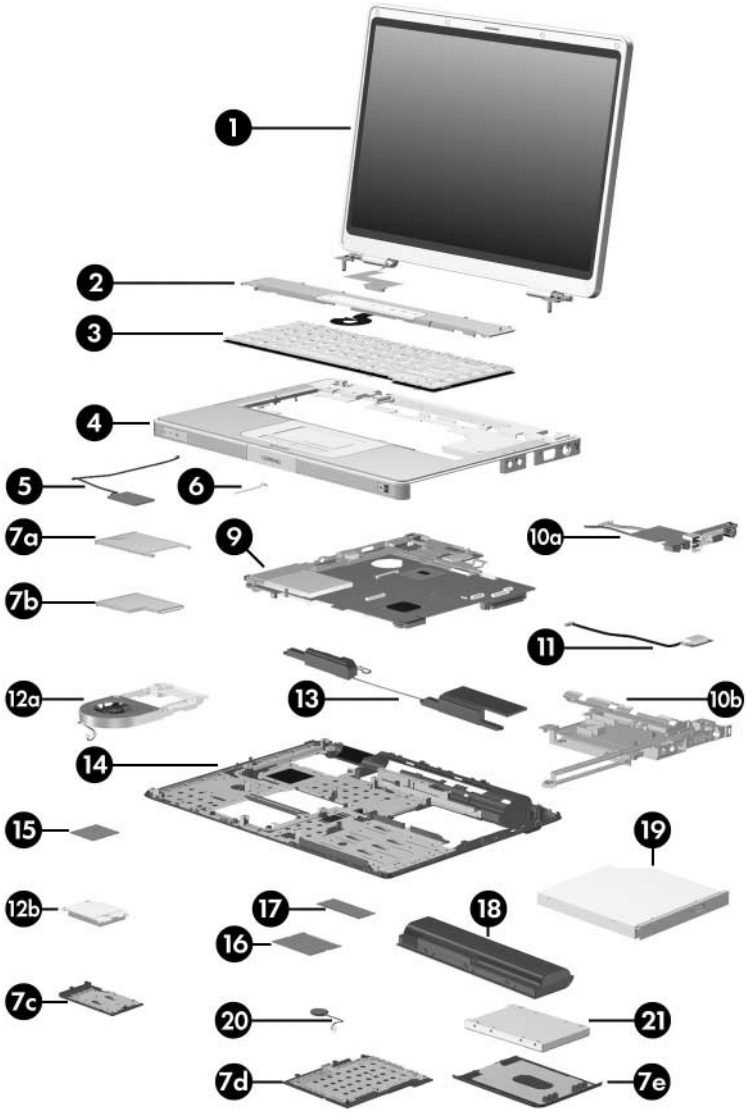


Computer Major Components, HP Pavilion dv4200

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
14	**Base enclosures**	
	For use with HP Pavilion dv4200 models	384629-001
	For use with Compaq Presario V4200 and HP Compaq nx7220 models	385739-001
	Rubber feet (not illustrated)	
	For use with HP Pavilion dv4200 models	404369-001
	For use with Compaq Presario V4200 and HP Compaq nx7220 models	404576-001
15	**Processors** (include thermal paste)	
	Intel Pentium M 2.13-GHz	396700-001
	Intel Pentium M 2.00-GHz	396699-001
	Intel Pentium M 1.86-GHz	393327-001
	Intel Pentium M 1.73-GHz	383474-001
	Intel Pentium M 1.60-GHz	396698-001
	Intel Celeron M 1.60-GHz	404803-001
	Intel Celeron M 1.50-GHz	383471-001
	Intel Celeron M 1.40-GHz	396697-001
	Intel Celeron M 1.30-GHz for use with HP Compaq nx7220 models	389036-001

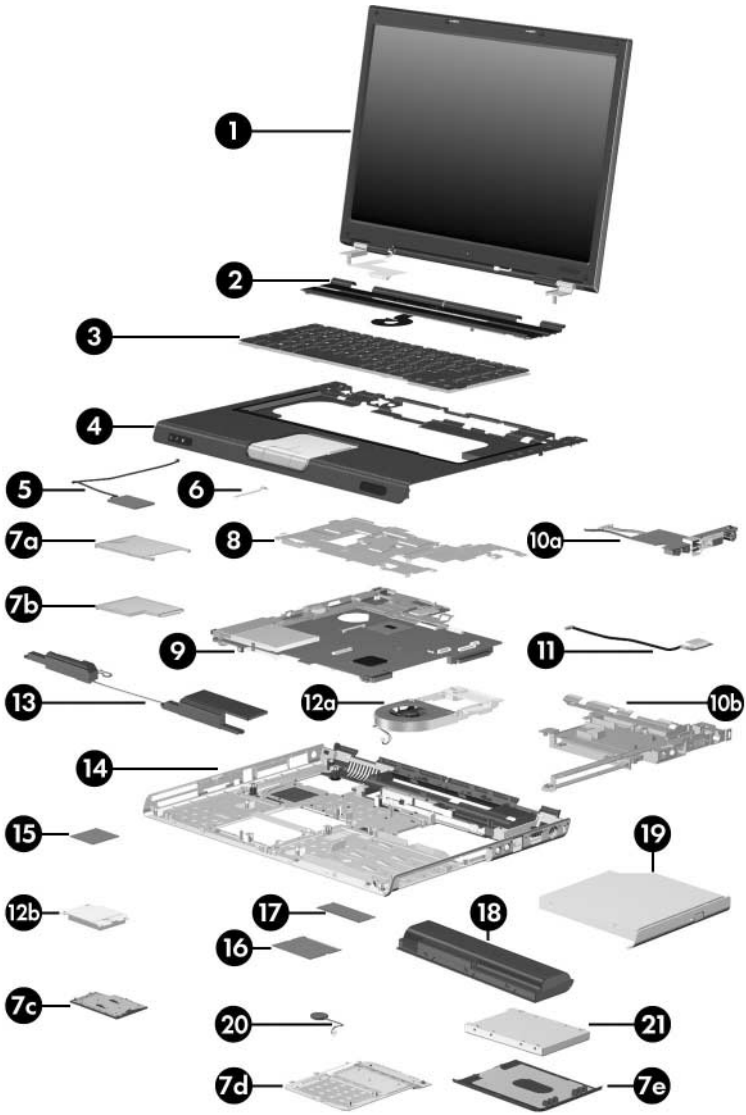


Computer Major Components, Compaq Presario V4200 and HP Compaq nx7220

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
16	**Mini PCI communications modules**	
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
	802.11b/g wireless local access network (WLAN) module, for use in most of the world	403927-001
	802.11b/g WLAN module, for use in the rest of the world	403298-001
	802.11b/g WLAN Broadcomm module, for use in most of the world	396694-001
	802.11b/g WLAN Broadcomm module, for use in the rest of the world	396695-001
	For use with HP Compaq nx7220 models	
	802.11b/g WLAN module, for use in Japan	378972-001 and 403214-291
17	**Memory modules**	
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
	1024 MB, 1DM	403898-001
	512 MB, 1DM	403897-001
	256 MB, 1DM	403896-001
	256MB	403573-001
	For use with HP Compaq nx7220 models	
	1024 MB, 1DM	383482-001
	512 MB, 1DM	383481-001
	256 MB, 1DM	383480-001

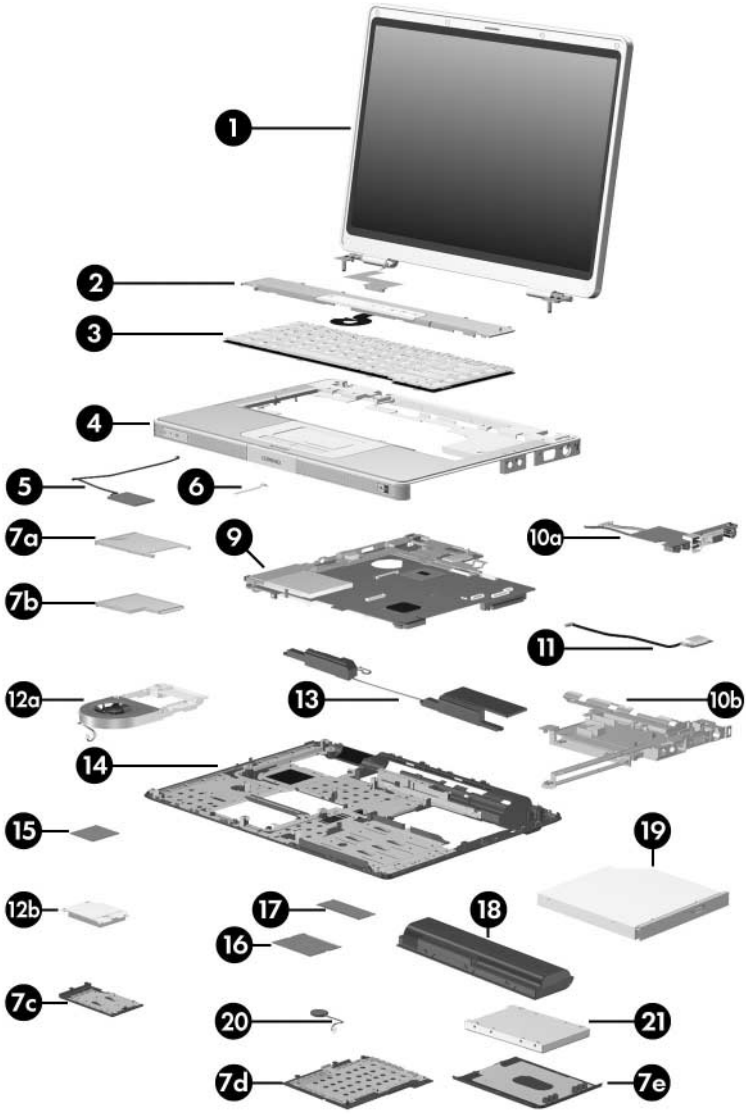


Computer Major Components, HP Pavilion dv4200

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
18	**Battery packs**	
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
	12-cell, 8.8-AHr	403737-001
	6-cell, 4.4-AHr	398752-001
	For use with HP Compaq nx7220 models	
	12-cell, 8.8-AHr	383492-001
	6-cell, 4.4-AHr	383493-001
19	**Optical drives**	
	For use with HP Pavilion dv4200 models	
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396704-001
	DVD±RW and CD-RW Double Layer Combo Drive	391743-001
	DVD/CD-RW Combo Drive	383490-001
	For use with Compaq Presario V4200 models	
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396705-001
	DVD±RW and CD-RW Double Layer Combo Drive	391744-001
	DVD/CD-RW Combo Drive	384631-001
	For use with HP Compaq nx7220 models	
	DVD-ROM drive	396707-001



Computer Major Components, Compaq Presario V4200 and HP Compaq nx7220

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description			Spare Part Number
20	**RTC battery** (includes 2-sided tape)			384626-001
21	**Hard drives** (include frame and connector)			
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models			
	5400-rpm		4200-rpm	
	80-GB	383487-001	100-GB	383488-001
			80-GB	383486-001
			60-GB	383484-001
			40-GB	383483-001
	For use with HP Compaq nx7220 models			
	5400-rpm, 60-GB			383485-001

3.3 Display Assembly Subcomponents: HP Pavilion dv4200 Models

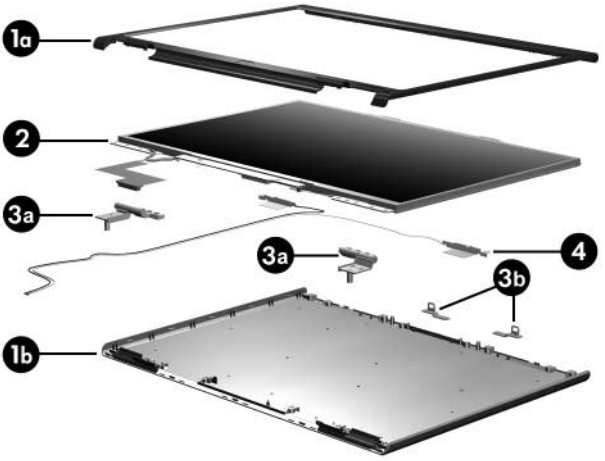


Table 3-2

HP Pavilion dv4200

Display Assembly Subcomponent

Spare Part Number Information

Item	Description	
	Display Plastics Kit, includes:	403919-001
1a	■ Display bezel	
1b	■ Display enclosure	
2	**Display Panel Kit** (includes display panel, display inverter, and display cable)	403918-001
	Display Hinge Kit, includes:	403921-001
3a	■ Display hinges (2)	
3b	■ Display release hooks (2)	
4	**Wireless antenna** (includes cable and board)	397924-001
	Display Label Kit (not illustrated)	403925-001
	Display Screw Kit (not illustrated, includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers)	403923-001

3.4 Display Assembly Subcomponents: Compaq Presario V4200 and HP Compaq nx7220 Models

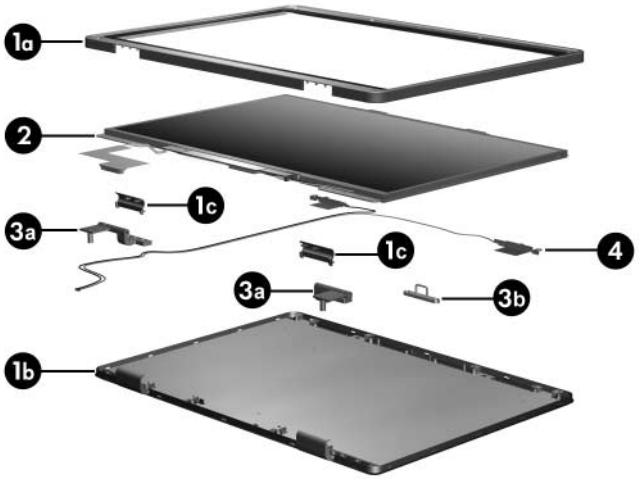


Table 3-3

Compaq Presario V4200 and HP Compaq nx7220 Models

Display Assembly Subcomponent

Spare Part Number Information

Item	Description	Spare Part Number
	Display Plastics Kit, includes:	403920-001
1a	■ Display bezel	
1b	■ Display enclosure	
1c	■ Display hinge covers	
2	**Display Panel Kit** (includes the display panel, display inverter, and display cable)	403918-001
	Display Hinge Kit, includes:	403922-001
3a	■ Display hinges (2)	
3b	■ Display release hooks (2)	
4	**Wireless antenna** (includes cable and board)	397925-001
	Display Label Kit (not illustrated)	403926-001
	Display Screw Kit (not illustrated, includes Phillips PM2.5×7.0 screws, Phillips PM2.5×5.0 screws, and rubber screw covers)	403924-001

3.5 Miscellaneous Doors/Covers Kit Spare Part Information

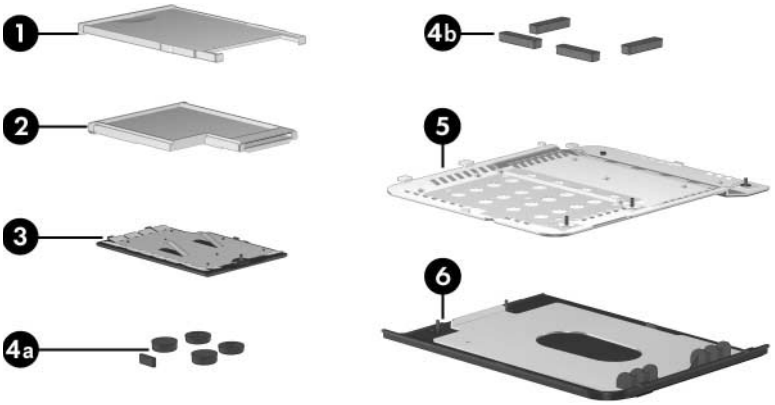


Table 3-4

Miscellaneous Doors/Covers Kit

Spare Part Information

Item	Description	Spare Part Number
	Miscellaneous Plastics Kit	
	For use with HP Pavilion dv4200 models	383469-001
	For use with Compaq Presario V4200 and HP Compaq nx7220 models	384627-001
	Includes:	
1	PC Card slot space saver	
2	ExpressCard slot space saver	
3	Thermal cover (includes one captive screw, secured by C-clip)	
	Computer feet	
4a	For use with HP Pavilion dv4200 models	
4b	For use with Compaq Pavilion V4200 models	
5	Memory module/Mini PCI compartment cover (includes 3 captive screws, secured by C-clips)	
6	Hard drive cover (includes 2 captive screws, secured by C-clips)	

3.6 Miscellaneous Cable Kit

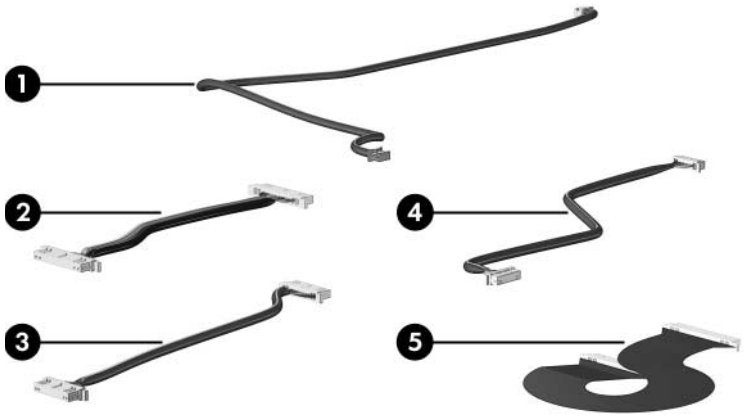


Table 3-5

Miscellaneous Cable Kit

Spare Part Number 383468-001

Item	Description	Spare Part Number
	Miscellaneous Cable Kit, includes:	383468-001
1	Modem cable	
2	Audio board cable	
3	USB board cable	
4	Bluetooth module cable	
5	LED board cable	

3.7 Mass Storage Devices

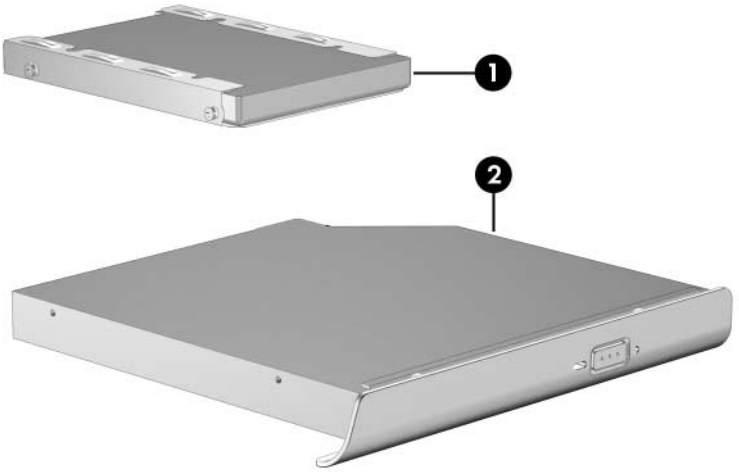


Table 3-6
Mass Storage Devices
Spare Part Number Information

Item	Description			Spare Part Number
1	**Hard drives** (include frame and connector)			
	For use with HP Pavilion dv4200 and Compaq Presario V4200 models			
	5400-rpm, 80-GB	383487-001	4200-rpm, 100-GB	383488-001
			80-GB	383486-001
			60-GB	383484-001
			40-GB	383483-001
	For use with HP Compaq nx7220 models			
	5400-rpm, 60-GB			383485-001
2	**Optical drives**			
	For use with HP Pavilion dv4200 models			
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe			396704-001
	DVD±RW and CD-RW Double Layer Combo Drive			391743-001
	DVD/CD-RW Combo Drive			383490-001
	For use with Compaq Presario V4200 models			
	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe			396705-001
	DVD±RW and CD-RW Double Layer Combo Drive			391744-001
	DVD/CD-RW Combo Drive			384631-001
	For use with HP Compaq nx7220 models			
	DVD-ROM drive			396707-001
	USB digital drive (not illustrated)			364727-001

3.8 Miscellaneous (Not Illustrated)

Table 3-7

Miscellaneous (Not Illustrated)

Spare Part Information

Description	Spare Part Number
Power supply, 90 watt, PFC	403901-001
Power supply, 90 watt, non-PFC	403900-001
Power supply, 65 watt	383494-001
Power supply, 65 watt, for use only with HP Compaq nx7220 models in Japan	403215-291
Power cords	
For use in:	
Australia and New Zealand	383496-011
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	383496-021
Canada, French Canada, Latin America, Taiwan, Thailand, and the United States	383496-001
Denmark	383496-081
Hong Kong and the United Kingdom	383496-031
Israel	383496-BB1
Italy	383496-061
Japan	383496-291
Korea	383496-AD1
Switzerland	383496-111
Taiwan	383496-AB1

Table 3-7

Miscellaneous (Not Illustrated)

Spare Part Information *(Continued)*

Description	Spare Part Number
Screw Kits (include the following screws; refer to Appendix C, "Screw Listing," for more information on specifications and usage) ■ Phillips PM2.5×8.0 screw ■ Phillips PM2.5×7.0 screw ■ Phillips PM2.5×4.0 screw ■ Phillips PM2.0×16.0 screw ■ Phillips PM2.0×5.0 screw ■ Phillips PM2.0×12.0 spring-loaded screw ■ Phillips PM2.0×4.0 screw ■ Phillips PM2.0×2.0 screw ■ Phillips PM1.5×4.0 screw	
For use with HP Pavilion dv4200 models	384628-001
For use with Compaq Presario V4200 and HP Compaq nx7220 models	385741-001
All-in-one media cable II	375759-001
Audio Y cable 2	379452-001
USB travel mouse	309674-001
USB digital drive	364727-001
Wired headset with volume control	371693-001

3.9 Sequential Part Number Listing

Table 3-8

Sequential Part Number Listing

Spare Part Number	Description
309674-001	USB travel mouse
364727-001	USB digital drive
371693-001	Wired headset with volume control
375759-001	All-in-one media cable II
378972-001	802.11b/g WLAN Mini PCI communications module, for use in the rest of the world for use with HP Compaq nx7220 models
379452-001	Audio Y cable 2
383459-001	Bluetooth module for use with HP Compaq nx7220 models
383466-001	Speakers
383467-001	TouchPad cable
383468-001	Miscellaneous Cable Kit
383469-001	Miscellaneous Doors/Covers Kit for use with HP Pavilion dv4200 models
383471-001	Intel Celeron M 1.50-GHz processor (includes thermal paste)
383474-001	Intel Pentium M 1.73-GHz processor (includes thermal paste)
383476-001	15.4-inch, WXGA, TFT display assembly, for use with HP Pavilion dv4200 models (includes display cable, wireless antenna boards, and antenna cables)
383477-001	15.4-inch, WXGA, TFT display assembly with BrightView for use with HP Pavilion dv4200 models (includes display cable, wireless antenna boards, and antenna cables)
383478-001	15.4-inch, WXGA, TFT display assembly for use with Compaq Presario V4200 models (includes display cable, wireless antenna boards, and antenna cables)

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383479-001	15.4-inch, WXGA, TFT display assembly with BrightView for use with Compaq Presario V4200 models (includes display cable, wireless antenna boards, and antenna cables)
383480-001	256-MB memory module for use with HP Compaq nx7220 models
383481-001	512-MB memory module for use with HP Compaq nx7220 models
383482-001	1024-MB memory module for use with HP Compaq nx7220 models
383483-001	4200-rpm 40-GB hard drive (includes frame and connector)
383484-001	4200-rpm 60-GB hard drive (includes frame and connector)
383485-001	5400 rpm, 80-GB hard drive (includes frame and connector) for use with HP Compaq nx7220 models
383486-001	4200-rpm 80-GB hard drive (includes frame and connector)
383487-001	5400 rpm, 80-GB hard drive (includes frame and connector)
383488-001	4200-rpm 100-GB hard drive (includes frame and connector)
383490-001	DVD/CD-RW Combo Drive or use with HP Pavilion dv4200 models
383492-001	12-cell, 8.8-Amp hour battery pack for use with HP Compaq nx7220 models
383493-001	6-cell, 4.4-Amp hour battery pack for use with HP Compaq nx7220 models
383494-001	65-watt power supply
383495-001	Keyboard for use with HP Pavilion dv4200 models in the United States
383495-021	Keyboard for use with HP Pavilion dv4200 models in Europe

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383495-031	Keyboard for use with HP Pavilion dv4200 models in the United Kingdom
383495-041	Keyboard for use with HP Pavilion dv4200 models in Germany
383495-051	Keyboard for use with HP Pavilion dv4200 models in France
383495-061	Keyboard for use with HP Pavilion dv4200 models in Italy
383495-071	Keyboard for use with HP Pavilion dv4200 models in Spain
383495-081	Keyboard for use with HP Pavilion dv4200 models in Denmark
383495-091	Keyboard for use with HP Pavilion dv4200 models in Norway
383495-111	Keyboard for use with HP Pavilion dv4200 models in Switzerland
383495-121	Keyboard for use with HP Pavilion dv4200 models in French Canada
383495-131	Keyboard for use with HP Pavilion dv4200 models in Portugal
383495-141	Keyboard for use with HP Pavilion dv4200 models in Saudi Arabia
383495-151	Keyboard for use with HP Pavilion dv4200 models in Greece
383495-171	Keyboard for use with HP Pavilion dv4200 models in Saudi Arabia
383495-181	Keyboard for use with HP Pavilion dv4200 models in Belgium
383495-281	Keyboard for use with HP Pavilion dv4200 models in Thailand
383495-291	Keyboard for use with HP Compaq nx7220 models in Japan
383495-AB1	Keyboard for use with HP Pavilion dv4200 models in Taiwan
383495-AD1	Keyboard for use with HP Pavilion dv4200 models in Korea
383495-B71	Keyboard for use with HP Pavilion dv4200 models in Sweden/Finland

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
383495-BB1	Keyboard for use with HP Pavilion dv4200 models in Israel
383496-001	Power cord for use in Canada, French Canada, Latin America, Taiwan, Thailand, and the United States
383496-011	Power cord for use in Australia and New Zealand
383496-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
383496-031	Power cord for use in Hong Kong and the United Kingdom
383496-061	Power cord for use in Italy
383496-081	Power cord for use in Denmark
383496-111	Power cord for use in Switzerland
383496-111	Power cord for use in Switzerland
383496-291	Power cord for use in Japan
383496-AD1	Power cord for use in Korea
383496-BB1	Power cord for use in Israel
384619-001	Switch cover for use with Compaq Presario V4200 models (includes LED board and LED board cable)
384622-001	Heat sink assembly (includes fan, heat sink, and thermal paste)
384623-001	Modem board (high-speed 56K, includes modem cable)
384624-001	System board shield for use with Compaq Presario V4200 and HP Compaq nx7220 models
384625-001	USB board (includes USB board, USB board frame, USB board cable, and audio board cable)
384626-001	RTC battery (includes 2-sided tape)

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
384627-001	Miscellaneous Doors/Covers Kit for use with Compaq Presario V4200 models
384628-001	Screw Kit for use with full-featured HP Pavilion dv4200 models
384629-001	Base enclosure for use with full-featured HP Pavilion dv4200 models
384631-001	DVD/CD-RW Combo Drive for use with Compaq Presario V4200 models
384635-001	Keyboard for use with Compaq Presario V4200 models in the United States
384635-031	Keyboard for use with Compaq Presario V4200 models in the United Kingdom
384635-051	Keyboard for use with Compaq Presario V4200 models in France
384635-061	Keyboard for use with Compaq Presario V4200 models in Italy
384635-071	Keyboard for use with Compaq Presario V4200 models in Spain
384635-081	Keyboard for use with Compaq Presario V4200 models in Denmark
384635-091	Keyboard for use with Compaq Presario V4200 models in Norway
384635-101	Keyboard for use with Compaq Presario V4200 models in Sweden and Finland
384635-121	Keyboard for use with Compaq Presario V4200 models in French Canada
384635-281	Keyboard for use with Compaq Presario V4200 models in Thailand

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
384635-331	Keyboard for use with Compaq Presario V4200 models in the Netherlands
384635-AD1	Keyboard for use with Compaq Presario V4200 models in Korea
385739-001	Base enclosure for use with Compaq Presario V4200 models
385741-001	Screw Kit for use with full-featured Compaq Presario V4200 models
389036-001	Intel Celeron M 1.3-GHz processor for use with HP Compaq nx7220 models
391737-001	TouchPad board, for use with Compaq Presario V4200 models
391743-001	DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with HP Pavilion dv4200 models
391744-001	DVD±RW and CD-RW Combo Drive (double-layer writing capability), for use with Compaq Presario V4200 models
393327-001	Intel Pentium M 1.86-GHz processor (includes thermal paste)
396694-001	802.11b/g WLAN Mini PCI communications Broadcomm module, for use in most of the world
396695-001	802.11b/g WLAN Mini PCI communications Broadcomm module, for use in the rest of the world
396697-001	Intel Celeron M 1.40-GHz processor (includes thermal paste)
396698-001	Intel Pentium M 1.60-GHz processor (includes thermal paste)
396699-001	Intel Pentium M 2.00-GHz processor (includes thermal paste)
396700-001	Intel Pentium M 2.13-GHz processor (includes thermal paste)
396704-001	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe for use with HP Pavilion dv4200 models

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
396705-001	DVD±RW and CD-RW Double Layer Combo Drive with LightScribe for use with Compaq Presario V4200 models
396707-001	DVD-ROM drive for use with HP Compaq nx7220 models
397859-001	Top cover for use with full-featured Compaq Presario V4200 models (does not include TouchPad)
397923-001	Bluetooth module (includes Bluetooth module cable)
397924-001	Wireless antenna for use with HP Pavilion dv4200 models (includes cable and transceiver)
397925-001	Wireless antenna for use with Compaq Presario V4200 models (includes cable and transceiver)
398752-001	Battery pack (6-cell, 4.4-Amp hour capacity)
403004-001	Switch cover for use with Compaq V4200 models without wireless capability
403005-001	Switch cover for use with HP Compaq nx7220 models with wireless capability
403006-001	Switch cover for use with HP Compaq nx7220 models without wireless capability
403213-001	915GML system board for use with HP Compaq nx7220 models
403214-001	802.11b/g WLAN module for use with HP Compaq nx7220 models
403215-291	65-watt power supply for use with HP Compaq nx7220 models
403251-001	15.4-inch WXGA display panel for use with HP Compaq nx7220 models (includes wireless antenna transceivers and cables)

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
403252-001	15.4-inch WXGA display panel with BrightView for use with HP Compaq nx7220 models (includes wireless antenna transceivers and cables)
403253-001	Top cover for use with full-featured HP Compaq nx7220 models (does not include TouchPad)
403573-001	256-MB memory module
403737-001	Battery pack (12-cell, 8.8-Amp hour capacity)
403894-001	System board, 915GML
403895-001	System board, 915PM/M25P128
403896-001	256-MB memory module, 1DM
403897-001	512-MB memory module, 1DM
403898-001	1024-MB memory module, 1DM
403900-001	90-watt power supply, non-PFC
403901-001	90-watt power supply, PFC
403906-001	Switch cover for use with HP Pavilion dv4200 models without wireless capability
403907-001	Switch cover for use with HP Pavilion dv4200 models with wireless capability
403908-001	Switch cover for use with HP Pavilion dv4200 models in Europe without wireless capability
403909-001	Switch cover for use with HP Pavilion dv4200 models in Europe with wireless capability
403912-001	PC Card assembly
403914-001	Top cover for use with HP Pavilion dv4200 models (includes TouchPad)
403915-001	System board shield for use with HP Pavilion dv4200 models

Table 3-8

Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
403917-001	System board shield for use with HP Pavilion dv4200 models
403918-001	Display Panel Kit (includes display inverter and display cable)
403919-001	Display Plastics Kit for use with HP Pavilion dv4200 models (includes display bezel and display enclosure)
403920-001	Display Plastics Kit for use with Compaq Presario V4200 models (includes display bezel, display enclosure, and display hinge covers)
403921-001	Display Hinge Kit for use with HP Pavilion dv4200 models (includes display hinges and display release hooks)
403922-001	Display Hinge Kit for use with Compaq Presario V4200 models (includes display hinges and display release hook)
403925-001	Display Label Kit for use with HP Pavilion dv4200 models
403926-001	Display Label Kit for use with Compaq Presario V4200 models
403927-001	802.11b/g WLAN Mini PCI communications module, for use in most of the world
403298-001	802.11b/g WLAN Mini PCI communications module, for use in the rest of the world
404083-001	Top cover for use with HP Pavilion dv4200 models (includes TouchPad)
404369-001	Rubber feet for use with HP Pavilion dv4200 models
404576-001	Rubber feet for use with Compaq Presario V4200 models
404803-001	Intel Celeron M 1.60-GHz processor (includes thermal paste)

4

Removal and Replacement Preliminaries

This chapter provides essential information for proper and safe removal and replacement service.

4.1 Tools Required

You will need the following tools to complete the removal and replacement procedures:

- Magnetic screwdriver
- Phillips P0 screwdriver
- Flat-bladed screwdriver
- Tool kit—includes connector removal tool, loopback plugs, and case utility tool

4.2 Service Considerations

The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures.

As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic Parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and Connectors

CAUTION: When servicing the computer, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

4.3 Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a removable drive, or loss of information, observe the following precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed.
- Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces covered with at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE: Handle With Care.”

4.4 Preventing Electrostatic Damage

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs.

An electronic device exposed to electrostatic discharge may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.
- Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a sensitive component or assembly.
- Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-shielding material (refer to Table 4-2, "Static-Shielding Materials").
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

4.7 Grounding Equipment and Methods

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Other grounding equipment recommended for use in preventing electrostatic damage includes:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities.

Table 4-1

Typical Electrostatic Voltage Levels

	Relative Humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

✎ A product can be degraded by as little as 700 V.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.

Table 4-2

Static-Shielding Materials

Material	Use	Voltage Protection Level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5

Removal and Replacement Procedures

This chapter provides removal and replacement procedures.

There are as many as 89 screws and screw locks, in 11 different sizes, that may have to be removed, replaced, or loosened when servicing the computer. Make special note of each screw and screw lock size and location during removal and replacement.

Refer to Appendix C, "Screw Listing." for detailed information on screw and screw lock sizes, locations, and usage.

5.1 Serial Number

Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.

Serial Number Location

5.2 Disassembly Sequence Chart

Use the chart below to determine the section number to be referenced when removing computer components.

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the Computer for Disassembly	
	Battery pack	0
5.4	Hard Drive	2 loosened to remove the hard drive cover 4 to remove the hard drive frame
5.5	Computer Feet	0
5.6	Optical Drive	1
5.7	Memory Module	3 loosened to remove the memory module/Mini PCI compartment cover
5.8	Mini PCI Communications Module	0
	⚠ To prevent an unresponsive system and the display of a warning message, install only a Mini PCI device authorized for use in your computer by the governmental agency that regulates wireless devices in your country. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact Customer Care.	
5.9	RTC Battery	0
5.10	Heat Sink	1 loosened to remove the thermal cover 4 removed to remove the heat sink

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.11	Processor	1 loosened
512	Switch Cover	3 on Compaq Presario V4200 and HP Compaq nx7220 models
5.13	Keyboard	4
5.14	Display Assembly	6
	Display bezel	6
	Display release hook	2
	Display hinges	6
	Display panel	6
	Wireless antenna transceiver and cable	0
5.15	Top Cover (HP Pavilion dv4200 models)	16
5.16	Base Enclosure (Compaq Presario V4200 and HP Compaq nx7220 models)	16
5.17	Modem Board	2
5.18	System Board	8 on HP Pavilion dv4200 models 4 on Compaq Presario V4200 and HP Compaq nx7220 models
5.19	PC Card Assembly	2
5.20	Fan Assembly	7

Disassembly Sequence Chart *(Continued)*		
5.21	Speakers	3
5.22	USB Board	HP Pavilion dv4200 models: 3 removed in Section 5.18; Compaq V4200 models: 4 to remove the USB board frame; 4 to remove the USB board
5.23	Bluetooth Module	2

5.3 Preparing the Computer for Disassembly

Before you begin any removal or installation procedures:

1. Shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord.

Battery Pack Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
12-cell, 8.8-AHr	403737-001
6-cell, 4.4-AHr	398752-001
For use with HP Compaq nx7220 models	
12-cell, 8.8-AHr	383492-001
6-cell, 4.4-AHr	383493-001

4. Remove the battery pack by following these steps:
   a. Turn the computer upside down with the front toward you.
   b. Slide and hold the battery release latch ❶ to the left. (The front edge of the battery pack disengages from the computer.)
   c. Lift the front edge of the battery pack up and swing it away from you ❷.
   d. Remove the battery pack.

Removing the Battery Pack

Reverse the above procedure to install the battery pack.

5.4 Hard Drive

Hard Drive Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
5400 rpm, 80-GB	383487-001
4200 rpm, 100-GB	383488-001
4200 rpm, 80-GB	383486-001
4200 rpm, 60-GB	383484-001
4200 rpm, 40-GB	383483-001
For use with HP Compaq nx7220 models	
5400-rpm, 60-GB	383485-001

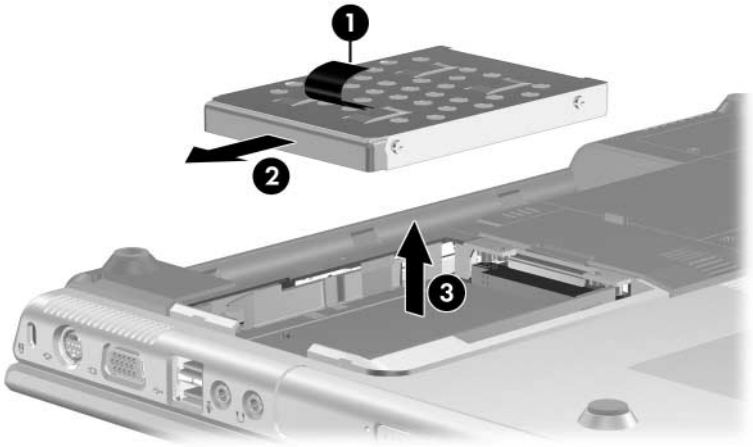
1. Prepare the computer for disassembly (Section 5.3).

2. Loosen the 2 Phillips PM2.0×5.0 screws ❶ that secure the hard drive cover to the computer.
3. Lift the right side of the cover up and swing it to the left ❷.
4. Remove the hard drive cover.

The hard drive cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4200 models) and spare part number 384627-001 (for use with Compaq Presario V4200 and HP Compaq nx7220 models).

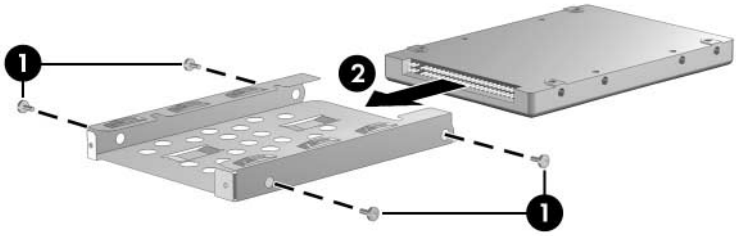
Removing the Hard Drive Cover

5. Use the tab ❶ on the right side of the hard drive to pull the hard drive to the left ❷ until it disconnects from the computer.
6. Lift the hard drive straight up ❸ and remove it from the hard drive bay.



Removing the Hard Drive

7. Remove the 4 Phillips PM2.5×4.0 screws ❶ that secure the hard drive frame to the hard drive.
8. Slide the frame forward ❷ to remove if from the hard drive.



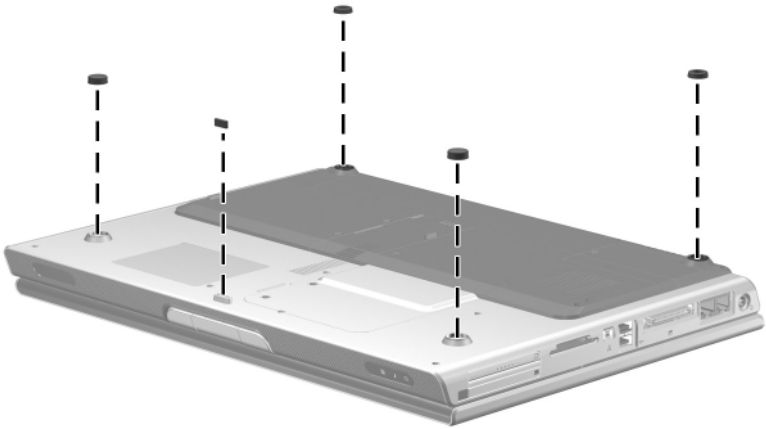
Removing the Hard Drive Frame

Reverse the above procedure to reassemble and install the hard drive.

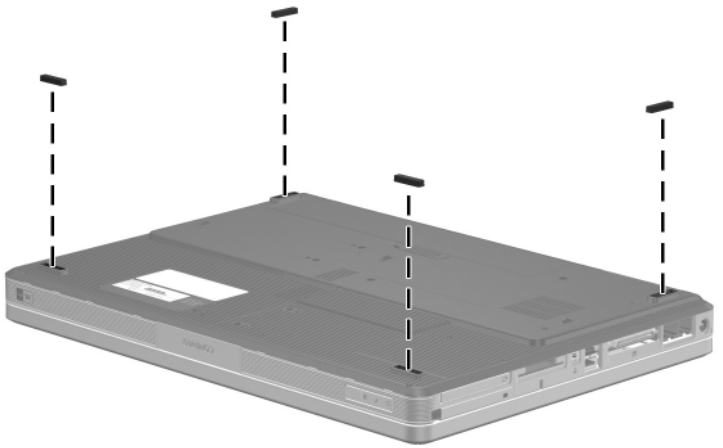
5.5 Computer Feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4200 models) and spare part number 384627-001 (for use with Compaq Presario V4200 and HP Compaq nx7220 models).

Rubber feet can also be ordered using spare part numbers 404369-001 (for use with HP Pavilion dv4200 models) and 404576-001 (for use with Compaq Presario V4200 and HP Compaq nx7220 models).



Replacing the Computer Feet, HP Pavilion dv4200 Models



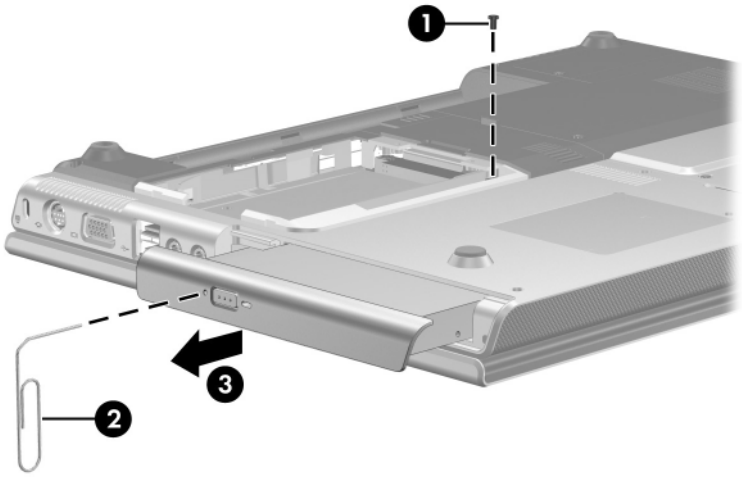
Replacing the Computer Feet, Compaq Presario V4200 and HP Compaq nx7220 Models

5.6 Optical Drive

Optical Drive Spare Part Number Information	
For use with HP Pavilion dv4200 models	
DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396704-001
DVD±RW and CD-RW Double Layer Combo Drive	391743-001
DVD/CD-RW Combo Drive	383940-001
For use with Compaq Presario V4200 models	
DVD±RW and CD-RW Double Layer Combo Drive with LightScribe	396705-001
DVD±RW and CD-RW Double Layer Combo Drive	391744-001
DVD/CD-RW Combo Drive	384631-001
For use with HP Compaq nx7220 models	
DVD-ROM drive	396707-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the hard drive cover (Section 5.4).

3. Remove the Phillips PM2.5×7.0 screw ❶ that secures the optical drive to the computer.
4. Insert a thin tool, such as a paper clip, into the media tray release hole ❷. (The optical drive media tray releases from the optical drive.)
5. Use the media tray frame to slide the optical drive to the left ❸.
6. Remove the optical drive.



Removing the Optical Drive

Reverse the above procedure to install the optical drive.

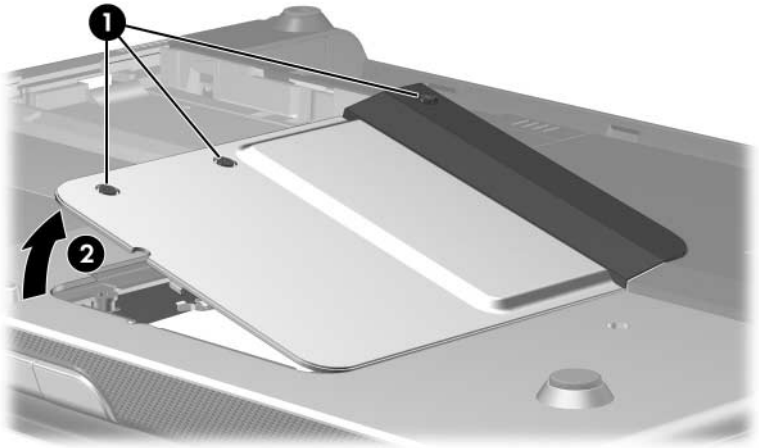
5.7 Memory Module

Memory Module Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
1024 MB, 1DM	403898-001
512 MB, 1DM	403897-001
256 MB, 1DM	403896-001
256MB	403573-001
For use with HP Compaq nx7220 models	
1024 MB, 1DM	383482-001
512 MB, 1DM	383481-001
256 MB, 1DM	383480-001

1. Prepare the computer for disassembly (refer to Section 5.3).

2. Loosen the 3 Phillips PM2.0×5.0 screws ❶ that secure the memory module compartment cover to the computer.
3. Lift the left edge of the cover up and swing it to the right ❷.
4. Remove the memory module compartment cover.

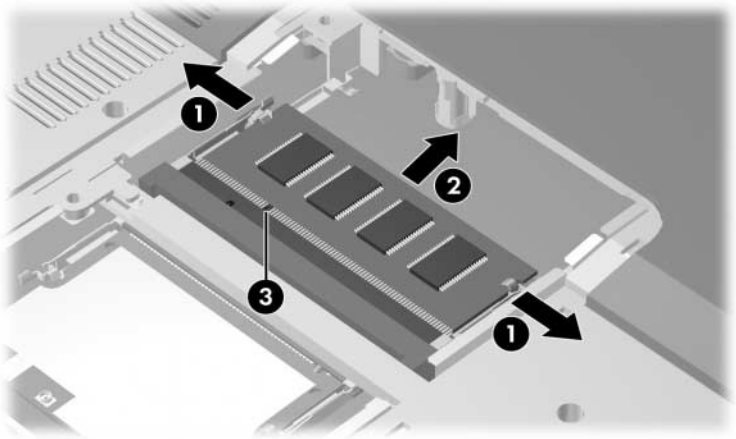
The memory module compartment cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4200 models) and spare part number 384627-001 (for use with Compaq Presario V4200 and HP Compaq nx7220 models).



Removing the Memory Module Compartment Cover

5. Spread the retaining tabs ❶ on each side of the memory module socket to release the memory module. (The side of the module opposite the socket rises away from the computer.)
6. Slide the module away from the socket at an angle ❷.
7. Remove the memory module.

Memory modules are designed with a notch ❸ to prevent incorrect installation into the memory module socket.



Removing the Memory Module

Reverse the above procedure to install a memory module.

5.8 Mini PCI Communications Module

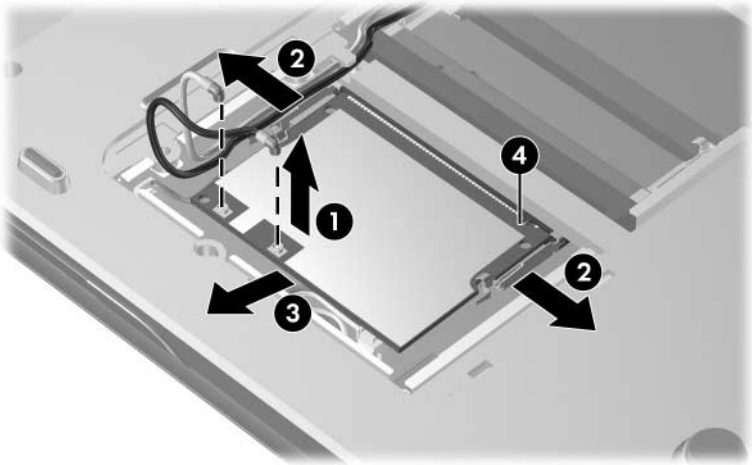
Mini PCI Communications Module Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
802.11b/g WLAN module for use in most of the world	403927-001
802.11b/g WLAN module for use in the rest of the world	403298-001
802.11b/g WLAN Broadcomm module for use in most of the world	396694-001
802.11b/g WLAN Broadcomm module for use in the rest of the world	396695-001
For use with HP Compaq nx7220 models	
802.11b/g WLAN module, for use Japan	378972-001 and 403214-291

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the memory module compartment cover (Section 5.8).

Make note of which antenna cable is attached to which antenna clip on the Mini PCI communications module before disconnecting the cables.

3. Disconnect the auxiliary and main antenna cables ❶ from the Mini PCI communications module.
4. Spread the retaining tabs ❷ on each side of the Mini PCI socket to release the Mini PCI communications module. (The edge of the module opposite the socket rises away from the computer.)
5. Remove the Mini PCI communications module by pulling the module away from the socket at a 45-degree angle ❸.

Mini PCI communications modules are designed with a notch ❹ to prevent incorrect installation.



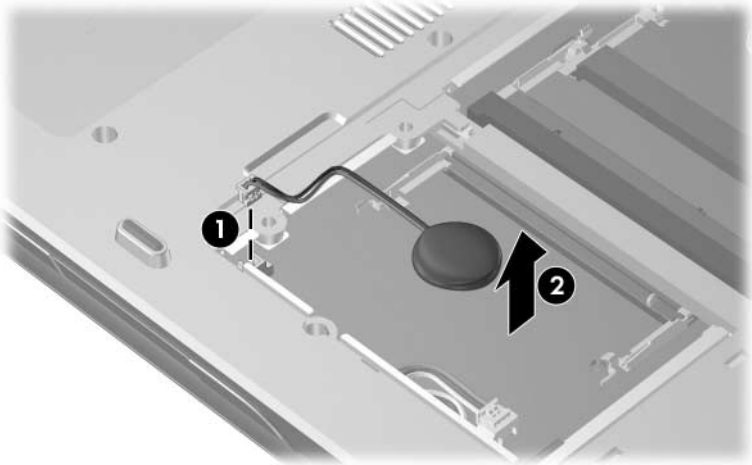
Removing a Mini PCI Communications Module

Reverse the above procedure to install a Mini PCI communications module.

5.9 RTC Battery

RTC Battery Spare Part Number Information	
RTC battery (includes 2-sided tape)	384626-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the Mini PCI communications module (Section 5.8).
3. Disconnect the RTC battery cable ❶ from the system board.
4. Remove the RTC battery ❷ from the system board. (The RTC battery is attached to the system board with two-sided tape.)



Removing the RTC Battery

Reverse the above procedure to install the RTC battery.

5.10 Heat Sink

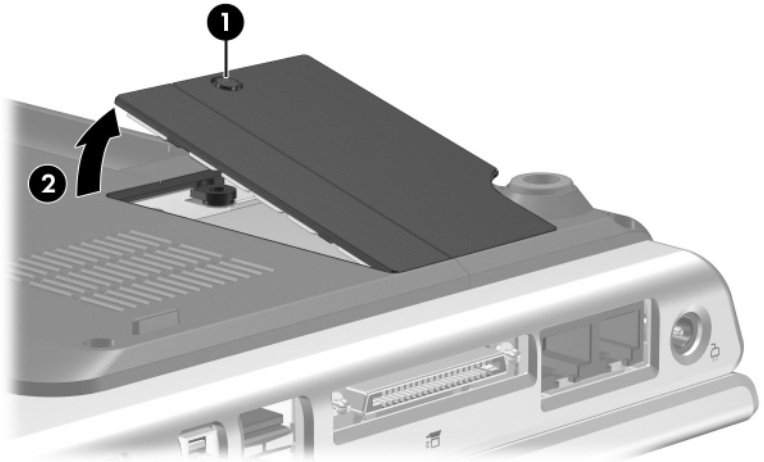
Heat Sink Spare Part Number Information	
Heat sink (includes fan and thermal paste)	384622-001

1. Prepare the computer for disassembly (Section 5.3).

2. Remove the Phillips PM2.0×5.0 screw ❶ that secures the thermal cover to the computer.
3. Lift the left edge of the cover up and swing it to the right ❷.

The thermal cover is included in the Miscellaneous Doors/Covers Kits, spare part number 383469-001 (for use with HP Pavilion dv4200 models) and spare part number 384627-001 (for use with Compaq Presario V4200 and HP Compaq nx7220 models).

4. Remove the thermal cover.



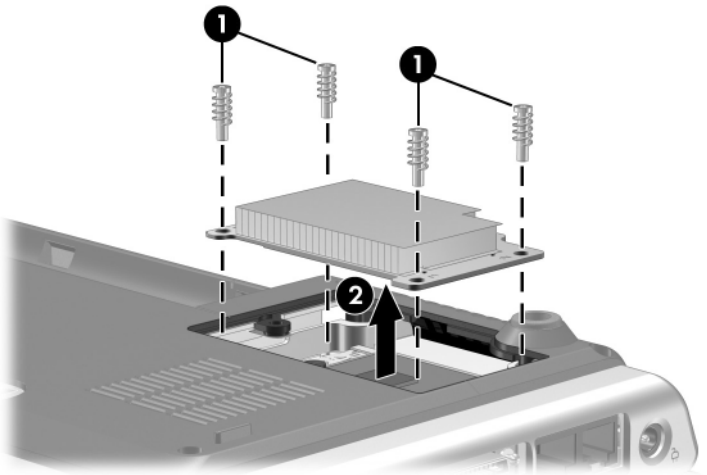
Removing the Thermal Cover

The following screws should be removed and installed in the 1, 2, 3, 4 sequence stamped on the heat sink.

5. Remove the 4 Phillips PM2.0×12.0 spring-loaded shoulder screws ❶ that secure the heat sink to the computer.

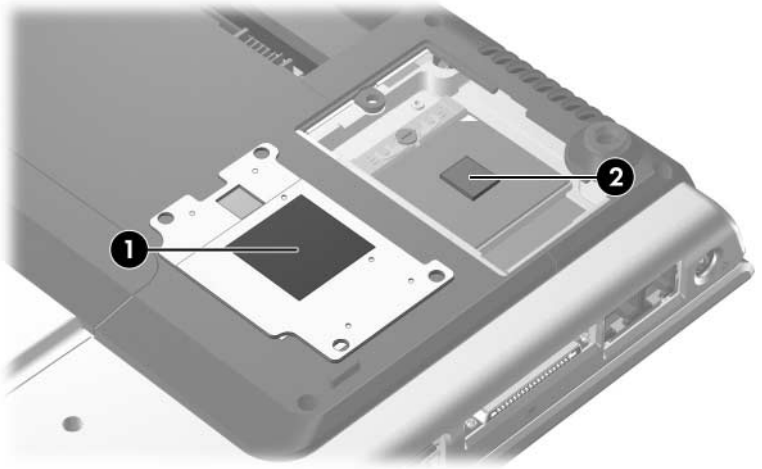
Due to the adhesive quality of the thermal paste located between the heat sink and processor, it may be necessary to move the heat sink from side to side to detach the heat sink from the processor.

6. Remove the heat sink ❷.



Removing the Heat Sink

The thermal paste should be thoroughly cleaned from the surfaces of the heat sink ❶ and processor ❷ each time the heat sink is removed. Thermal paste is included with all heat sink and processor spare part kits.



Thermal Paste Locations

Reverse the above procedure to install the heat sink.

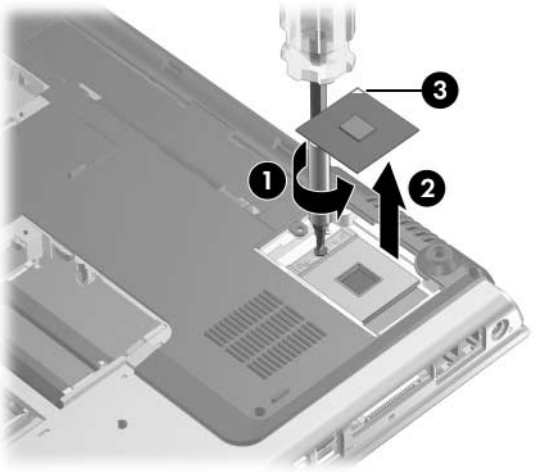
5.11 Processor

Processor Spare Part Number Information	
Intel Pentium M 2.13-GHz	396700-001
Intel Pentium M 2.00-GHz	396699-001
Intel Pentium M 1.86-GHz	393327-001
Intel Pentium M 1.73-GHz	383474-001
Intel Pentium M 1.60-GHz	396698-001
Intel Celeron M 1.60-GHz	404803-001
Intel Celeron M 1.50-GHz	383471-001
Intel Celeron M 1.40-GHz	396697-001
Intel Celeron M 1.30-GHz for use with HP Compaq nx7220 models	389036-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the heat sink (Section 5.10).

3. Use a flat-blade screwdriver to turn the processor locking screw one-quarter turn counterclockwise ❶ until you hear a click.
4. Lift the processor straight up and remove it ❷.

The gold triangle ❸ on the processor should be aligned in the rear right corner when you install the processor.



Removing the Processor

Reverse the above procedure to install the processor.

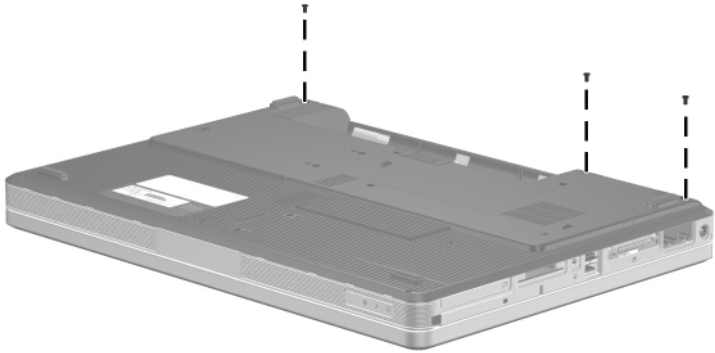
5.12 Switch Cover

Switch Cover Spare Part Number Information	
For use with HP Pavilion dv4200 models with wireless capability	403907-001
For use with HP Pavilion dv4200 models without wireless capability	403906-001
For use with HP Pavilion dv4200 models in Europe with wireless capability	403909-001
For use with HP Pavilion dv4200 models in Europe without wireless capability	403908-001
For use with Compaq Presario V4200 models with wireless capability	384619-001
For use with Compaq Presario V4200 models without wireless capability	403004-001
For use with HP Compaq nx7220 models with wireless capability	403006-001
For use with HP Compaq nx7220 models without wireless capability	403006-001

1. Prepare the computer for disassembly (Section 5.3).

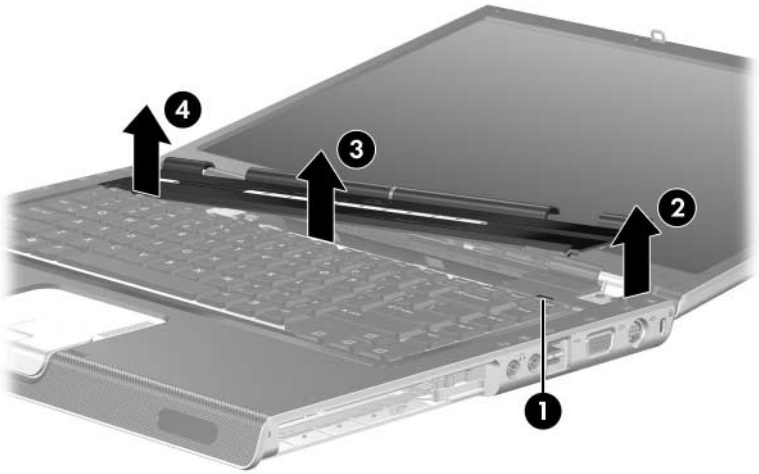
Steps 2 and 3 apply to Compaq Presario V4200 and HP Compaq nx7220 models.

2. Turn the computer upside down with the rear panel toward you.
3. Remove the 3 Phillips PM2.5×7.0 screws that secure the switch cover to the computer.



Removing the Switch Cover Screws, Compaq Presario V4200 and HP Compaq nx7220 Models

4. Turn the computer right-side up with the front toward you.
5. Open the computer as far as possible.
6. Press and hold down the **insert** key ❶.
7. Insert a flat blade tool into the notch in the switch cover behind the **insert** key and lift the switch cover ❷.
8. Disengage the center ❸ and left side ❹ of the switch cover from the computer.
9. Rest the switch cover on the computer.

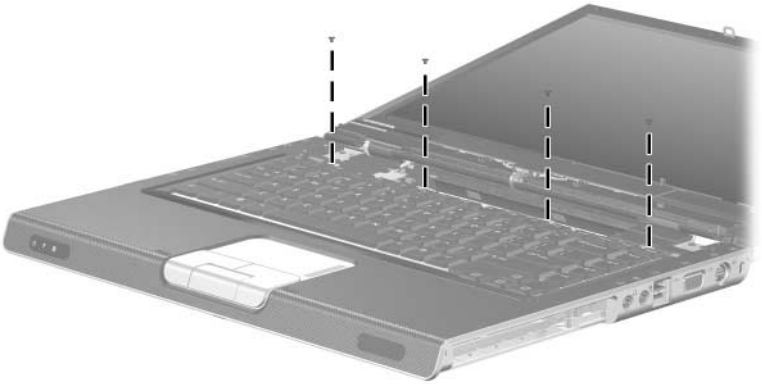


Releasing the Switch Cover

5.13 Keyboard

Keyboard Spare Part Number Information			
For use with HP Pavilion dv4200 models:			
Belgium	383495-181	Portugal	383495-131
Denmark	383495-081	Saudi Arabia	383495-171
Europe	383495-021	Spain	383495-071
France	383495-051	Sweden/Finland	383495-b71
French Canada	383495-121	Switzerland	383495-111
Germany	383495-041	Taiwan	383495-ab1
Greece	383495-151	Thailand	383495-281
Italy	383495-061	Turkey	383495-141
Korea	383495-ad1	United Kingdom	383495-031
The Netherlands	383495-331	United States	383495-001
Norway	383495-091		
For use with Compaq Presario dv4200 models:			
Denmark	384635-081	Norway	384635-091
France	384635-051	Spain	384635-071
French Canada	384635-121	Sweden/Finland	384635-101
Italy	384635-061	Thailand	384635-AB1
Korea	384635-AD1	United Kingdom	384635-031
The Netherlands	384635-331	United States	384635-001
For use with HP Compaq nx7220 models:			
Japan	384635-291		

1. Prepare the computer for disassembly (Section 5.3).
2. Release the switch cover (Section 5.12).
3. Remove the 4 Phillips PM2.0×2.0 screws that secure the keyboard to the computer.

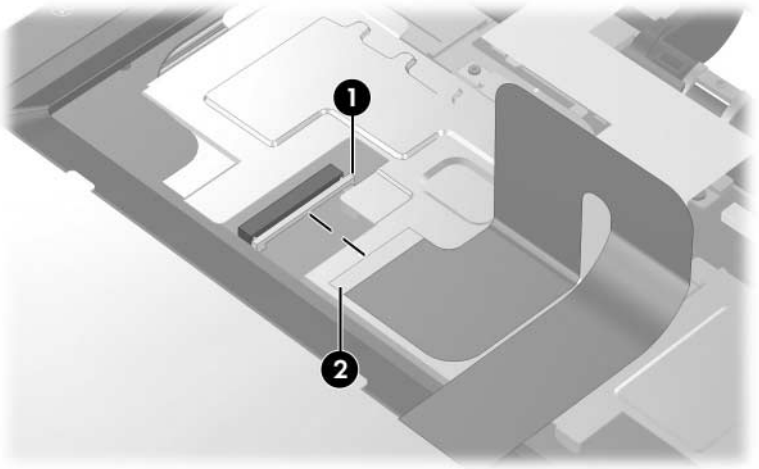


Removing the Keyboard Screws

4. Lift the rear edge of the keyboard and swing it forward until it rests on the palm rest.

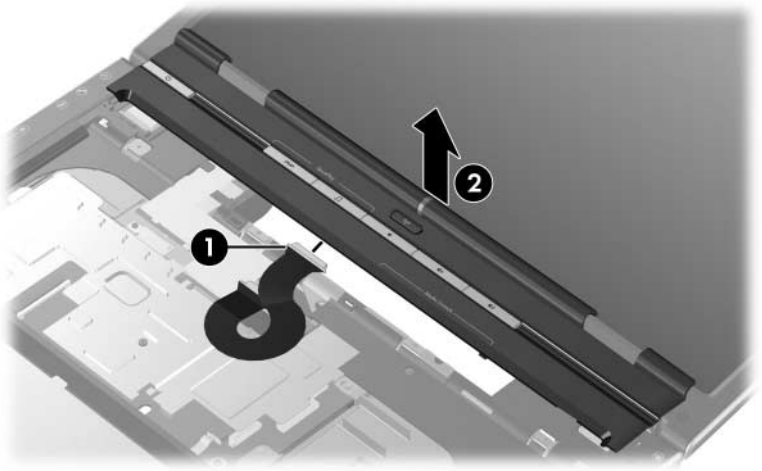
Releasing the Keyboard

5. Release the ZIF connector ❶ to which the keyboard cable is connected and disconnect the keyboard cable ❷ from the system board.
6. Remove the keyboard.



Disconnecting the Keyboard Cable

7. Disconnect the LED board cable ❶ from the system board.
8. Remove the switch cover ❷.



Removing the Switch Cover

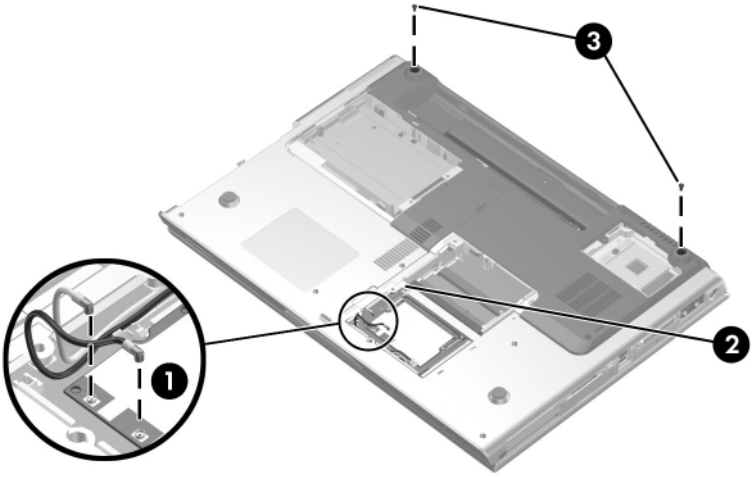
Reverse the above procedure to install the keyboard and switch cover.

5.14 Display Assembly

Display Assembly Spare Part Number Information	
For use with HP Pavilion dv4200 models	
15.4-inch, WXGA, TFT with BrightView	383477-001
15.4-inch, WXGA, TFT	383476-001
For use with Compaq Presario V4200 models	
15.4-inch, WXGA, TFT with BrightView	383479-001
15.4-inch, WXGA, TFT	383478-001
For use with HP Compaq nx7220 models	
15.4-inch, WXGA, TFT with BrightView	403251-001
15.4-inch, WXGA, TFT	403252-001

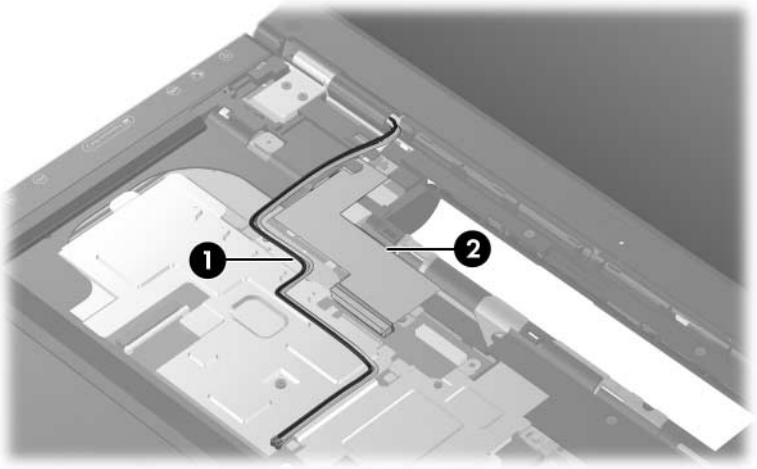
All display assembly spare part kits include a display cable, wireless antenna transceivers, and wireless antenna cables.

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the switch cover (Section 5.12).
3. Remove the keyboard (Section 5.13).
4. Turn the computer upside down with the front toward you. Disconnect the wireless antenna cables from the Mini PCI communications module ❶.
5. Remove the cables from the clip ❷ in the base enclosure.
6. Remove the 2 Phillips PM2.5×7.0 screws ❸ that secure the display assembly to the computer.



Removing the Display Screws

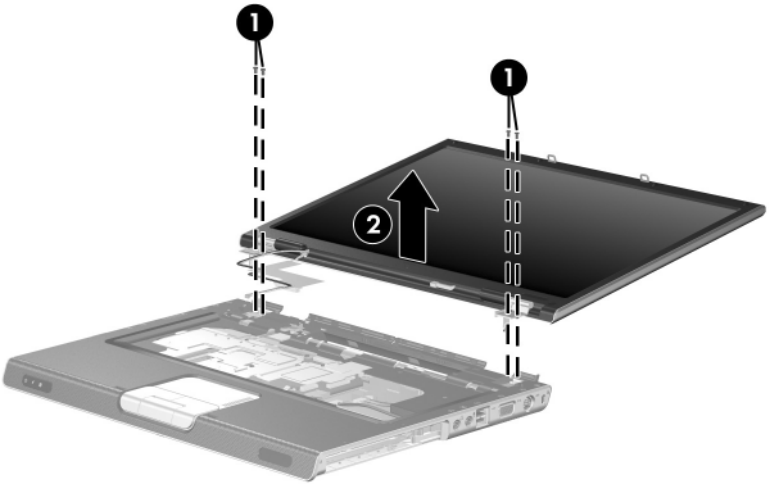
7. Turn the computer right-side up with the front toward you.
8. Open the display as far as possible.
9. Remove the wireless antenna cables ❶ from the clips in the top cover.
10. Disconnect the display cable from the system board ❷.



Removing the Wireless Antenna Cables

CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

11. Remove the 4 Phillips PM2.5×7.0 screws ❶ that secure the display assembly to the computer.
12. Remove the display assembly ❷.



Removing the Display Assembly

Steps 14 through 25 apply to HP Pavilion dv4200 models. See steps 26 through 38 in this section to disassemble the display assembly on Compaq Presario V4200 and HP Compaq nx7220 models.

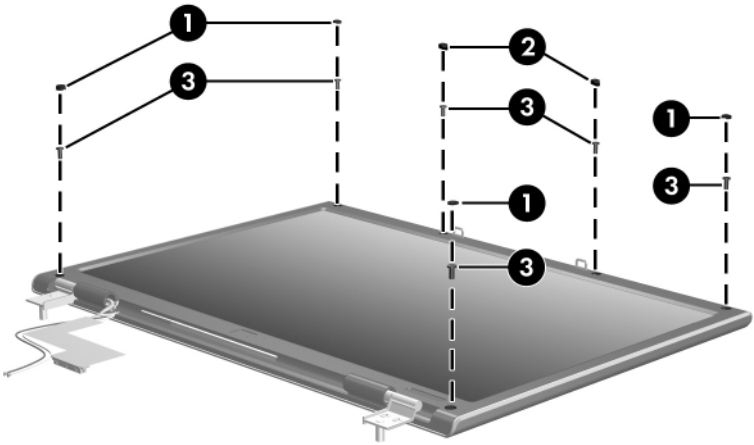
Display Assembly Subcomponents

Spare Part Number Information

Display Plastics Kit for use with HP Pavilion dv4200 models, includes: ■ Display bezel ■ Display enclosure	403919-001

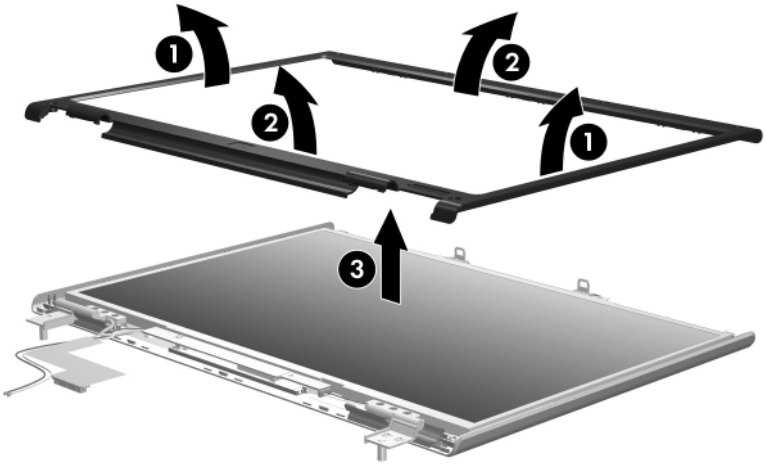
13. Remove the 6 rubber screw covers ❶ and ❷ and six PM2.5×7.0 screws ❸ that secure the display bezel to the display assembly.

The rubber screw covers are included in the Display Screw Kit, spare part number 403923-001. The four taller screw covers ❶ should be installed in the screw holes on the top edge of the bezel.



Removing the Display Bezel Screws, HP Pavilion dv4200 Models

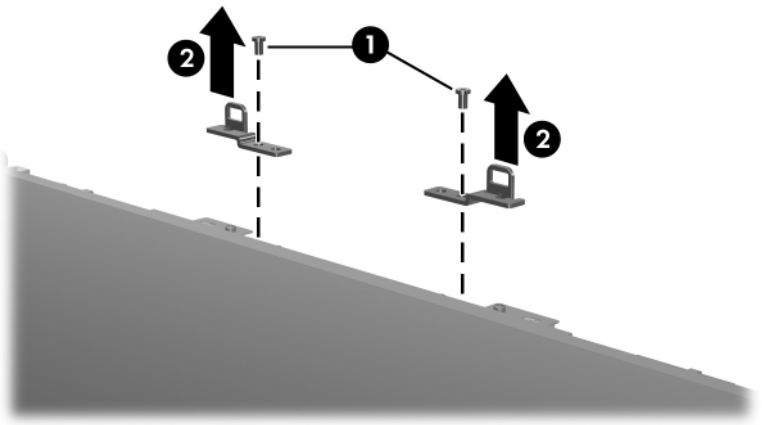
14. Flex the inside edges of the left and right sides ❶ of the display bezel and the inside edges of the top and bottom sides ❷ of the display bezel until the bezel disengages from the display assembly.
15. Remove the display bezel ❸.



Removing the Display Bezel, HP Pavilion dv4200 Models

Display Assembly Subcomponents Spare Part Number Information	
Display Hinge Kit for use with HP Pavilion dv4200 models, includes: ■ Display release hooks ■ Display hinges	403921-001

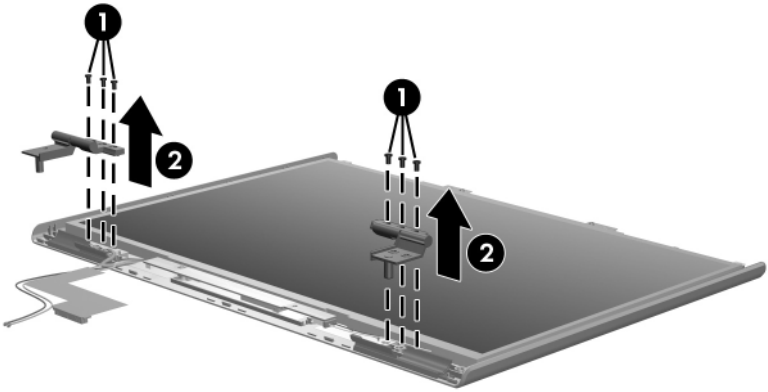
16. Remove the Phillips PM2.5×5.0 screws ❶ that secure each display release hook to the display enclosure.
17. Remove the display release hooks ❷.



Removing the Display Release Hooks, HP Pavilion dv4200 Models

Display Assembly Subcomponents Spare Part Number Information	
Display Hinge Kit for use with HP Pavilion dv4200 models, includes: ■ Display hinges ■ Display release hooks	403921-001

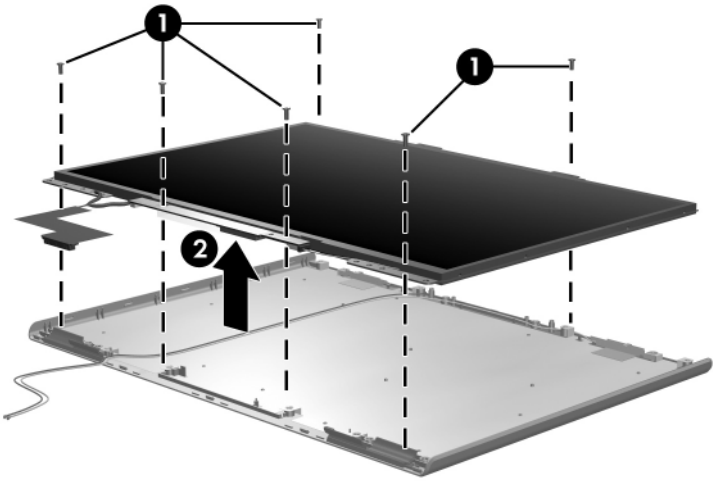
18. Remove the 3 Phillips PM2.5×7.0 screws ❶ that secure each display hinge to the display enclosure.
19. Remove the display hinges ❷.



Removing the Display Hinges, HP Pavilion dv4200 Models

Display Assembly Subcomponents Spare Part Number Information	
Display Panel Kit (includes display inverter and display cable)	403918-001

20. Remove the 6 Phillips PM2.5×5.0 screws ❶ that secure the display panel to the display enclosure.
21. Remove the display panel ❷.



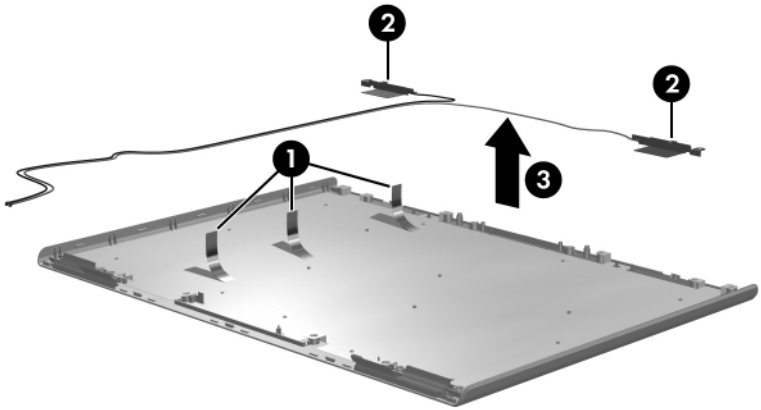
Removing the Display Panel, HP Pavilion dv4200 Models

Display Assembly Subcomponents

Spare Part Number Information

Wireless antenna for use with HP Pavilion dv4200 models (includes cable and transceiver)	397924-001

22. Release the retention tabs ❶ built in to the display enclosure shield that secure the wireless antenna cables to the display enclosure.
23. Detach the wireless antenna transceivers ❷ from the display enclosure.
24. Remove the wireless antenna transceivers and cables ❸.



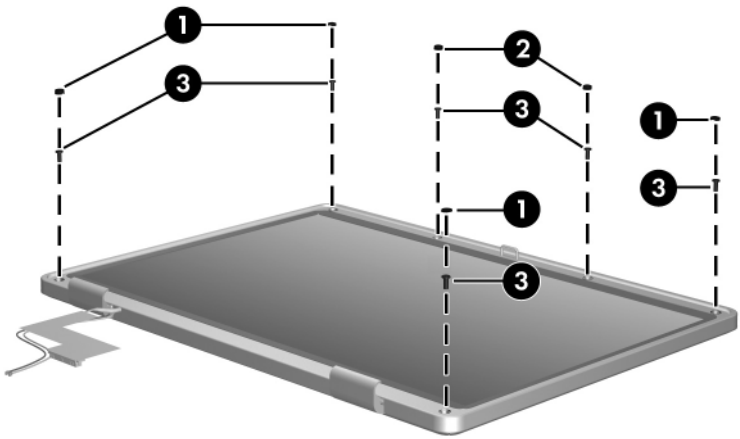
Removing the Wireless Antenna Transceivers and Cables, HP Pavilion dv4200 Models

Steps 26 through 38 apply to Compaq Presario V4200 and HP Compaq nx7220 models.

Display Assembly Subcomponents Spare Part Number Information	
Display Plastics Kit for use with Compaq Presario V4200 and HP Compaq nx7220 models, includes: ■ Display bezel ■ Display enclosure ■ Display hinge covers)	403920-001

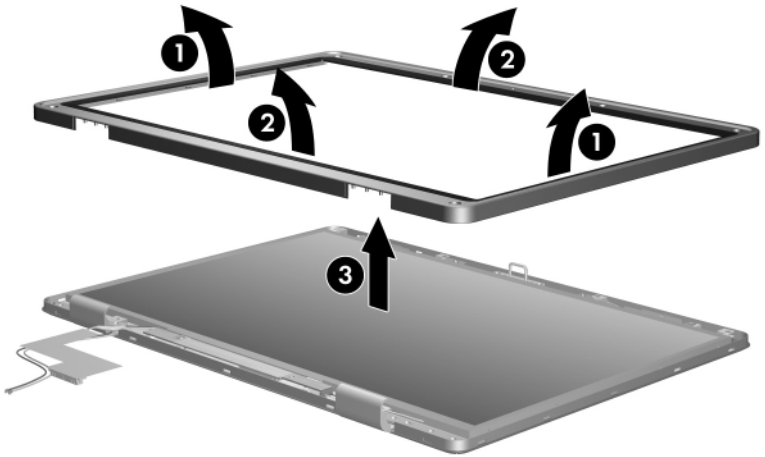
25. Remove the 6 rubber screw covers ❶ and ❷ and six PM2.5×7.0 screws ❸ that secure the display bezel to the display assembly.

The rubber screw covers are included in the Display Screw Kit, spare part number 403924-001. The four taller screw covers ❶ should be installed in the screw holes on the top edge of the bezel.



Removing the Display Bezel Screws, Compaq Presario V4200 and HP Compaq nx7220 Models

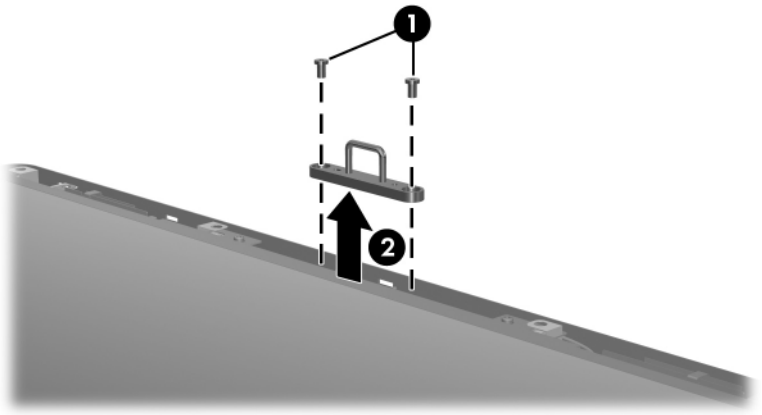
26. Flex the inside edges of the left and right sides ❶ of the display bezel and the inside edges of the top and bottom sides ❷ of the display bezel until the bezel disengages from the display assembly.
27. Remove the display bezel ❸.



Removing the Display Bezel, Compaq Presario V4200 and HP Compaq nx7220 Models

Display Assembly Subcomponents Spare Part Number Information	
Display Hinge Kit for use with Compaq Presario V4200 and HP Compaq nx7220 models, includes: ■ Display release hook ■ Display hinges ■ Display hinge covers	403921-001

28. Remove the 2 Phillips PM2.5×5.0 screws ❶ that secure the display release hook to the display enclosure.
29. Remove the display release hook ❷.



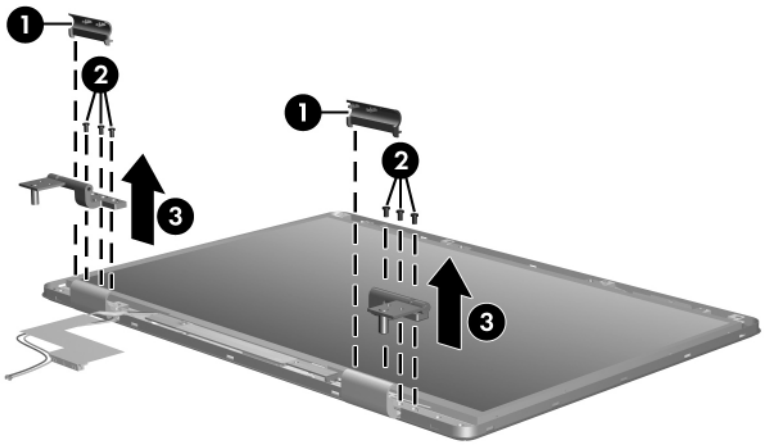
Removing the Display Release Hook, Compaq Presario V4200 and HP Compaq nx7220 Models

Display Assembly Subcomponents

Spare Part Number Information

Display Hinge Kit for use with Compaq Presario V4200 and HP Compaq nx7220 models, includes: ■ Display hinge covers ■ Display hinges ■ Display release hook	403921-001

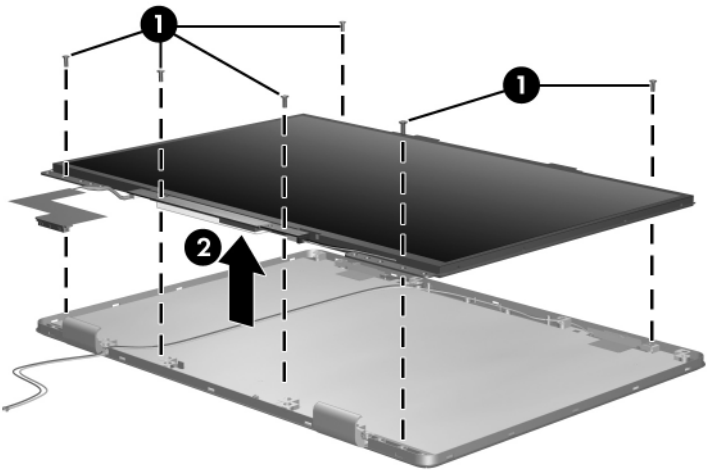
30. Remove the display hinge covers ❶.
31. Remove the 3 Phillips PM2.5×7.0 screws ❷ that secure each display hinge to the display enclosure.
32. Remove the display hinges ❸.



Removing the Display Hinges, Compaq Presario V4200 and HP Compaq nx7220 Models

Display Assembly Subcomponents Spare Part Number Information	
Display Panel Kit (includes display inverter and display cable)	403918-001

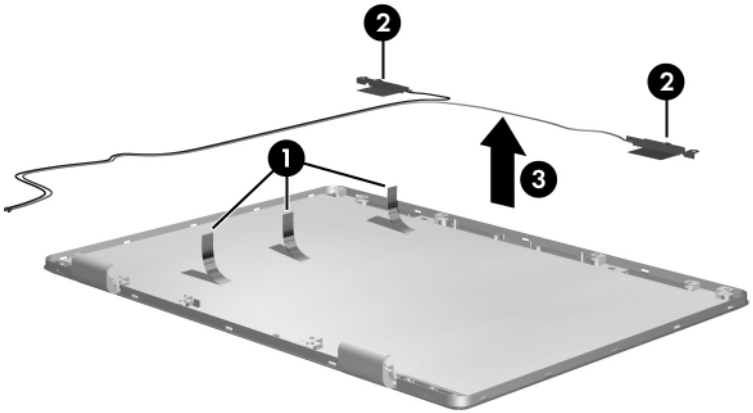
33. Remove the 6 Phillips PM2.5×5.0 screws ❶ that secure the display panel to the display enclosure.
34. Remove the display panel ❷.



Removing the Display Panel, Compaq Presario V4200 and HP Compaq nx7220 Models

Display Assembly Subcomponents Spare Part Number Information	
Wireless antenna for use with Compaq Presario V4200 and HP Compaq nx7220 models (includes cable and transceiver)	397925-001

35. Release the retention tabs ❶ built in to the display enclosure shield that secure the wireless antenna cables to the display enclosure.
36. Detach the wireless antenna transceivers ❷ from the display enclosure.
37. Remove the wireless antenna transceivers and cables ❸.



Removing the Wireless Antenna Transceivers and Cables, Compaq Presario V4200 and HP Compaq nx7220 Models

Reverse the above procedure to reassemble and install the display assembly.

5.15 Top Cover

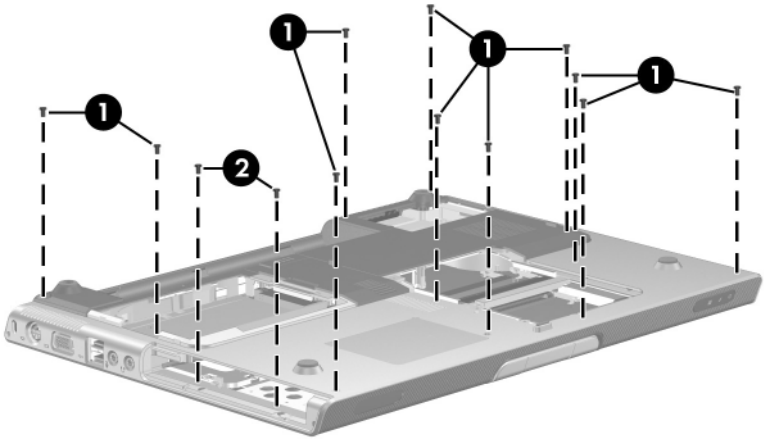
The top cover removal procedures in this section apply to HP Pavilion dv4200 models. The spare part information listed in the following table applies to HP Pavilion dv4200, Compaq Presario V4200, and HP Compaq nx7220 models.

Top Cover Spare Part Number Information

For use with HP Pavilion dv4200 models (includes TouchPad)	403914-001
For use with full-featured Compaq Presario V4200 models (does not include TouchPad)	397859-001
For use with defeatured Compaq Presario V4200 models (does not include TouchPad)	404083-001
For use with HP Compaq nx7220 models (does not include TouchPad)	403253-001
TouchPad board, for use with Compaq Presario V4200 and HP Compaq nx7220 models (not illustrated)	391737-001

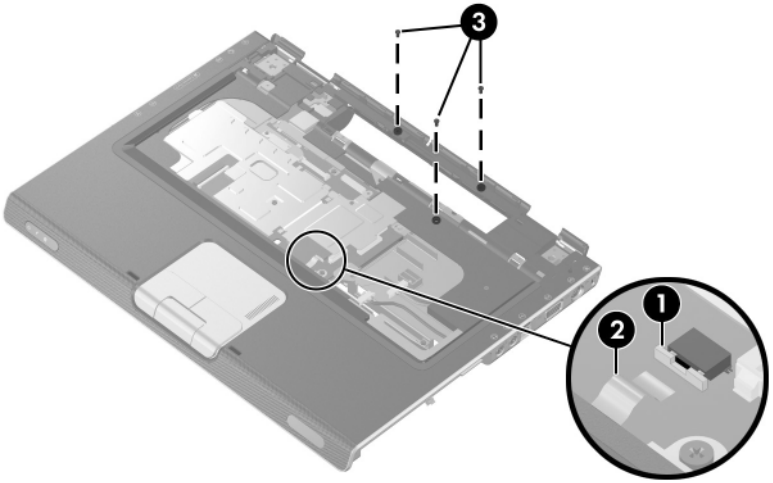
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
2. Turn the computer upside down with the front toward you.

3. Remove the following:
   - ❶ Eleven Phillips PM2.5×7.0 screws
   - ❷ Two Phillips PM2.0×4.0 screws in the optical drive bay



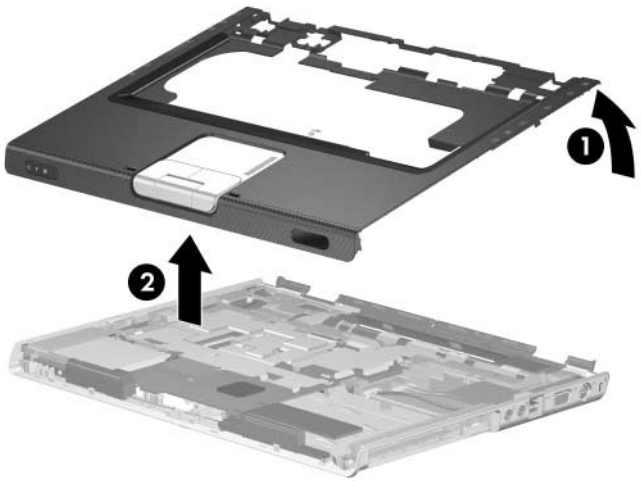
Removing the Top Cover Screws, Part 1, HP Pavilion dv4200 Models

4. Turn the computer right side up with the front toward you.
5. Release the ZIF connector ❶ to which the TouchPad cable is attached and disconnect the cable ❷ from the system board.
6. Remove the 3 Phillips PM2.5×7.0 screws ❸ that secure the top cover to the base enclosure.



Removing the Top Cover Screws, Part 2, HP Pavilion dv4200 Models

7. Swing the rear edge of the top cover up and forward ❶ until it rests at an angle.
8. Lift the top cover up and remove it ❷.



Removing the Top Cover, HP Pavilion dv4200 Models

Reverse the above procedure to install the top cover.

5.16 Base Enclosure

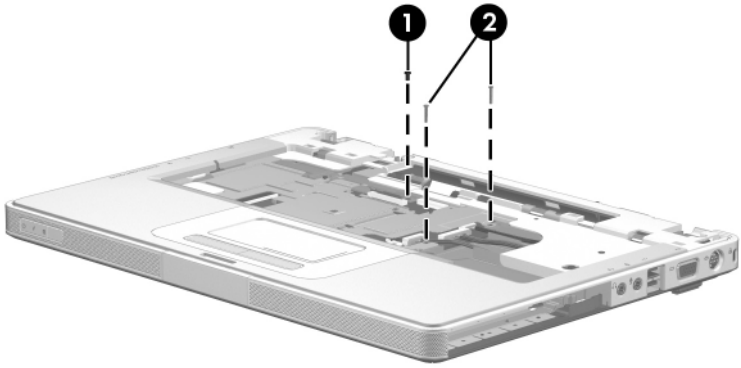
The base enclosure removal procedures in this section apply to Compaq Presario V4200 and HP Compaq nx7220 models. The spare part information listed in the following table applies to HP Pavilion dv4200, Compaq Presario V4200, and HP Compaq nx7220 models.

Base Enclosure Spare Part Number Information

For use with HP Pavilion dv4200 models	384629-001
For use with Compaq Presario V4200 and HP Compaq nx7220 models	385739-001
Rubber feet (not illustrated)	
For use with HP Pavilion dv4200 models	404369-001
For use with Compaq Presario V4200 and HP Compaq nx7220 models	404576-001

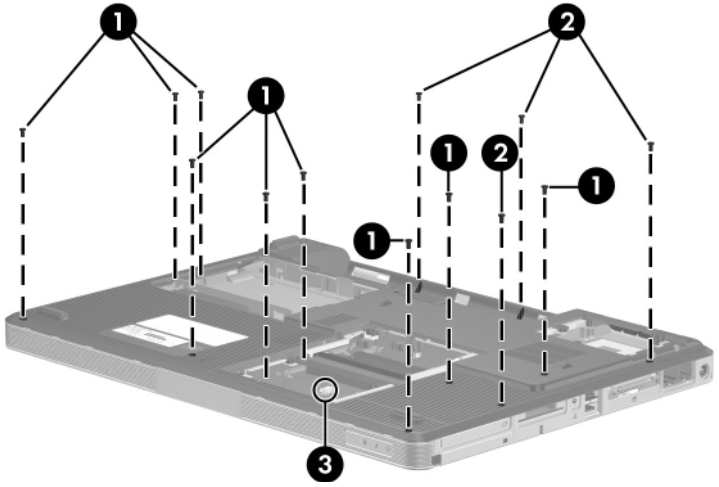
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
2. Turn the computer right-side up with the front toward you.

3. Remove the following screws:
   - ❶ One Phillips PM2.5×7.0 screw
   - ❷ Two Phillips PM2.0×16.0 screws



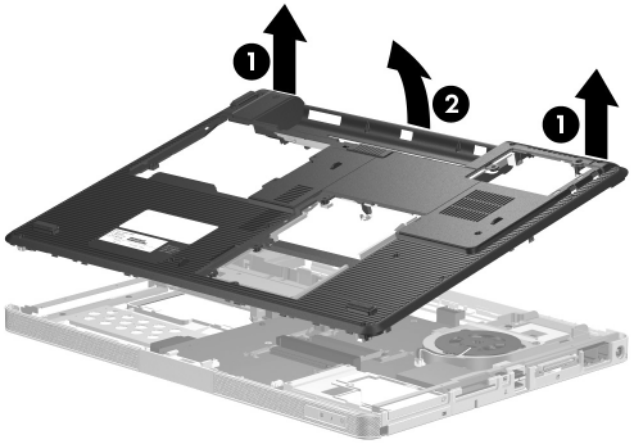
Removing the Base Enclosure Screws, Part 1, Compaq Presario V4200 and HP Compaq nx7220 Models

4. Turn the computer upside down with the front toward you.
5. Remove the following screws:
   - ❶ Nine Phillips PM2.5×7.0 screws
   - ❷ Four Phillips PM2.0×4.0 screws
6. Disconnect the speaker cable ❸.



Removing the Base Enclosure Screws, Part 2,
Compaq Presario V4200 and HP Compaq nx7220 Models

7. Lift the left and right rear corners ❶ of the base enclosure until the rear edge of the base enclosure disengages from the computer.
8. Swing the rear edge of the base enclosure up and forward ❷ until it disengages from the computer.
9. Remove the base enclosure.



Removing the Base Enclosure, Compaq Presario V4200 and HP Compaq nx7220 Models

Reverse the above procedure to install the base enclosure.

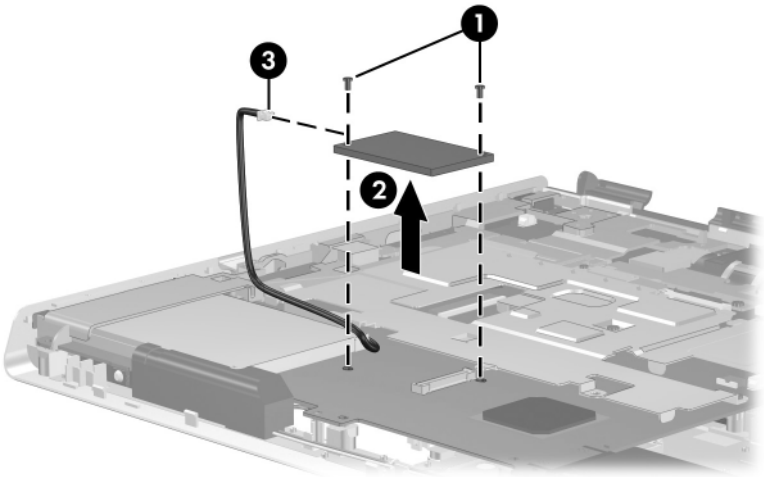
5.17 Modem Board

Modem Board Spare Part Number Information	
Modem board (high-speed 56kbps)	384623-001

The modem board cannot be removed from Compaq Presario V4200and HP Compaq nx7220 models until after the system board has been removed.

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4200 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4200 and HP Compaq nx7220 models, Section 5.16)

2. Remove the 2 Phillips PM2.0×4.0 screws ❶ that secure the modem board to the system board.
3. Lift the right side of the modem board ❷ to disconnect the modem board from the system board.
4. Disconnect the modem cable ❸ from the modem board.
5. Remove the modem board.



Removing the Modem Board

Reverse the above procedure to install the modem board.

5.18 System Board

System Board Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	
915GML	403894-001
915PM/M25P128	403895-001
For use with HP Compaq nx7220 models	
915GML	403213-001

When replacing the system board, ensure that the following components are removed from the defective system board and installed on the replacement system board:

- Memory module (Section 5.7)
- Mini PCI communications module (Section 5.8)
- RTC battery (Section 5.9)
- Processor (Section 5.11)
- Modem board (Section 5.17)
- PC Card assembly (Section 5.19)
- Fan assembly (Section 5.20)

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Optical drive (Section 5.6)
   c. Heat sink (Section 5.10)

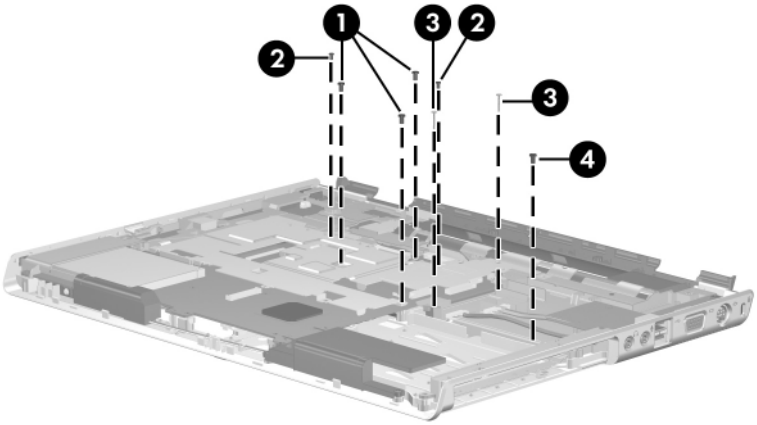
d. Switch cover (Section 5.12)
e. Keyboard (Section 5.13)
f. Display assembly (Section 5.14)
g. Top cover (HP Pavilion dv4200 models, Section 5.15)
h. Base enclosure (Compaq Presario V4200 and HP Compaq nx7220 models, Section 5.16)

2. Turn the computer upside down with the front toward you.
3. Disconnect the speaker cable from the system board.

Disconnecting the Speaker Cable

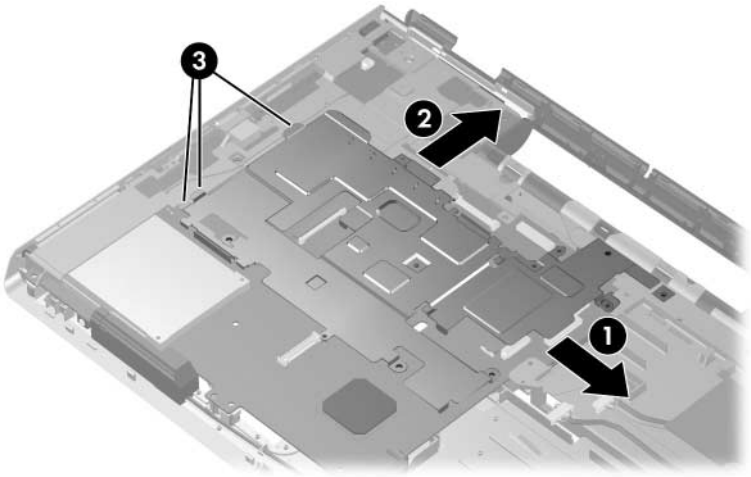
Steps 4 through 18 apply to HP Pavilion dv4200 models. See steps 19 through 25 in this section to remove the system board on Compaq Presario V4200 and HP Compaq nx7220 models.

4. Turn the computer top side up with the front toward you.
5. Remove the following screws:
   - ❶ Three Phillips PM2.5×7.0 screws that secure the system board and shield to the computer
   - ❷ Two Phillips PM2.0×4.0 screws that secure the system board and shield to the computer
   - ❸ Two Phillips PM2.0×16.0 screws that secure the system board, shield, and USB board to the computer
   - ❹ One Phillips PM2.5×7.0 screw that secures the USB board to the computer



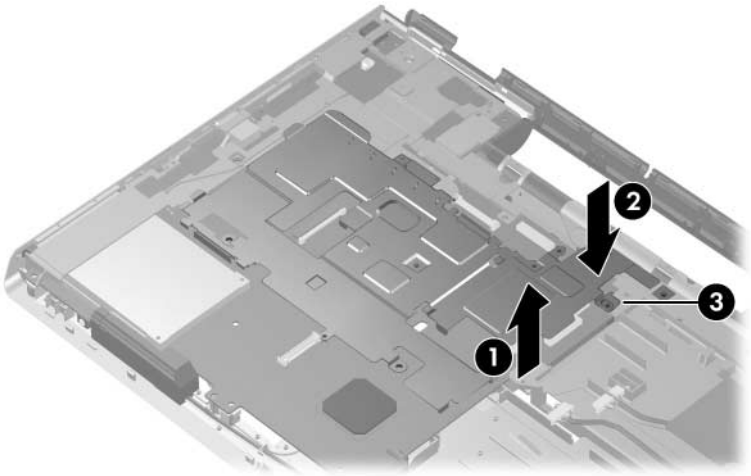
Removing the System Board Screws, HP Pavilion dv4200 Models

6. Slide the system board shield forward ❶ and to the right ❷ until the tabs ❸ on the shield disengage from the base enclosure.



Releasing the System Board Shield, Part 1, HP Pavilion dv4200 Models

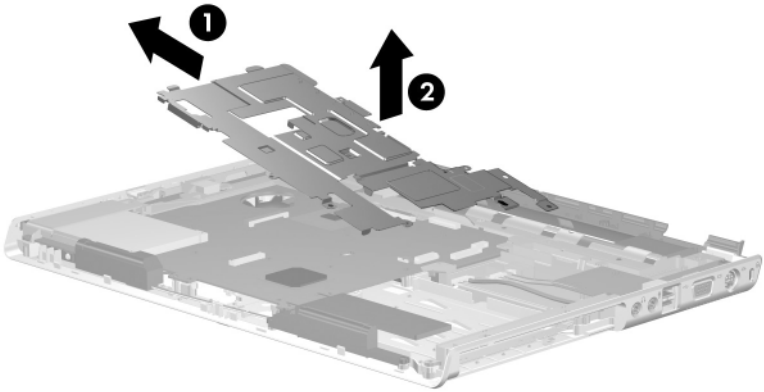
7. Lift up on the left side of the USB board frame ❶.
8. Press down on the right side of the system board shield ❷ until the shield tab ❸ disengages from the standoff on the bottom of the USB board frame.



Releasing the System Board Shield, Part 2, HP Pavilion dv4200 Models

9. Slide the system board shield to the left ❶ until it clears the USB board frame.
10. Remove the system board shield ❷.

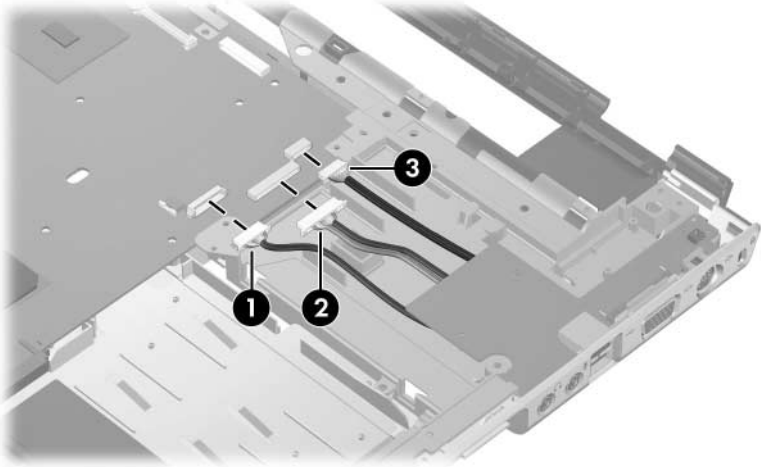
System Board Shield Spare Part Number Information	
For use with HP Pavilion dv4200 models	403915-001
For use with Compaq Presario V4200 and HP Compaq nx7220 models	384624-001



Removing the System Board Shield, HP Pavilion dv4200 Models

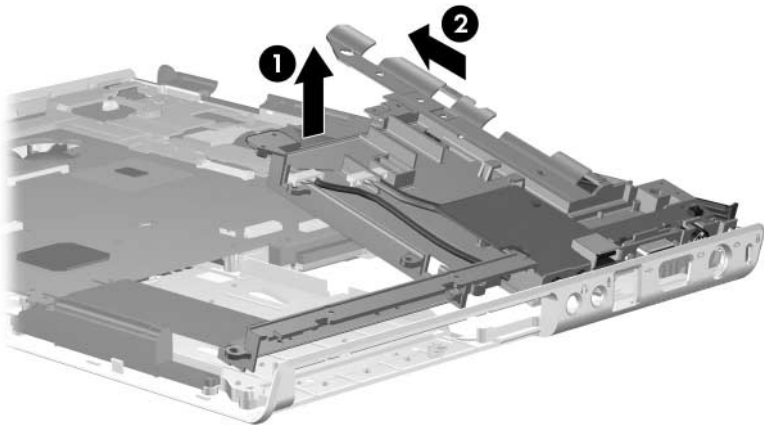
Steps 11 through 18 provide instructions for removing the USB board and frame on HP Pavilion dv4200 models. Refer to Section 5.22, "USB Board," for instructions on removing the USB board and frame on Compaq Presario V4200 and HP Compaq nx7220 models.

11. Disconnect the audio ❶, USB ❷, and Bluetooth cables ❸ from the system board.



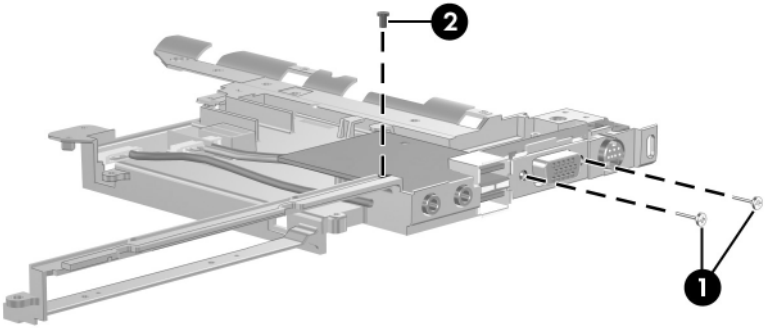
Disconnecting the Audio, USB, and Bluetooth Module Cables, HP Pavilion dv4200 Models

12. Lift the left side of the USB board and frame ❶ until it rests at an angle.
13. Slide the USB board and frame to the left ❷ and remove it.



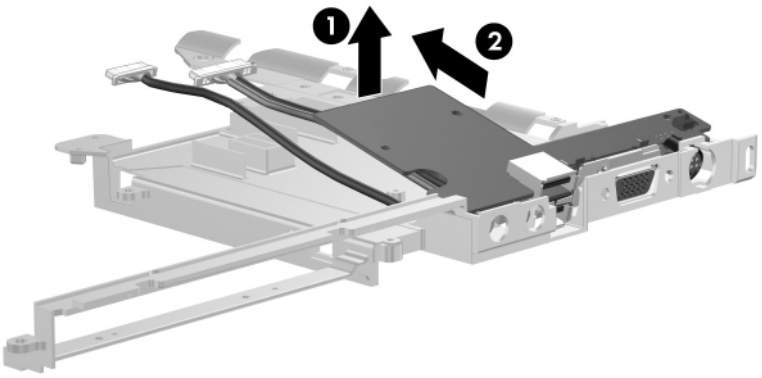
Removing the USB Board and Frame, HP Pavilion dv4200 Models

14. Remove the 2 Phillips PM2.5×8.0 round head screws ❶ and the Phillips PM2.0×4.0 screw ❷ that secure the USB board to the frame.



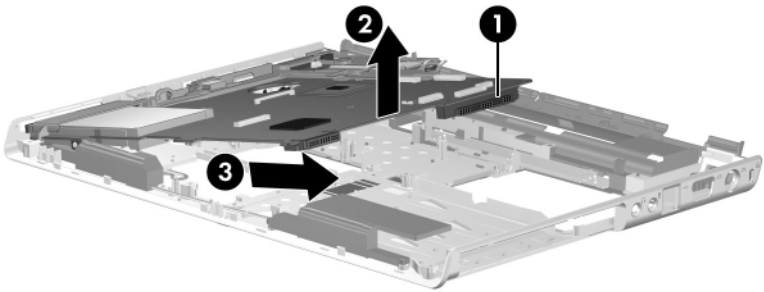
Removing the USB Board Screws, HP Pavilion dv4200 Models

15. Lift the left side of the USB board ❶ until it rests at an angle.
16. Slide the USB board to the left ❷ and remove it from the frame.



Removing the USB Board, HP Pavilion dv4200 Models

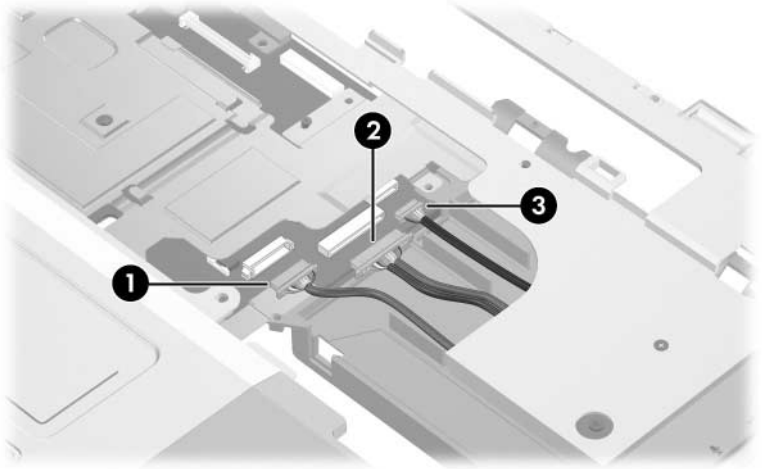
17. Use the hard drive connector ❶ to lift the right side of the system board ❷ until it rests at an angle.
18. Slide the system board to the right ❸ and remove it.



Removing the System Board, HP Pavilion dv4200 Models

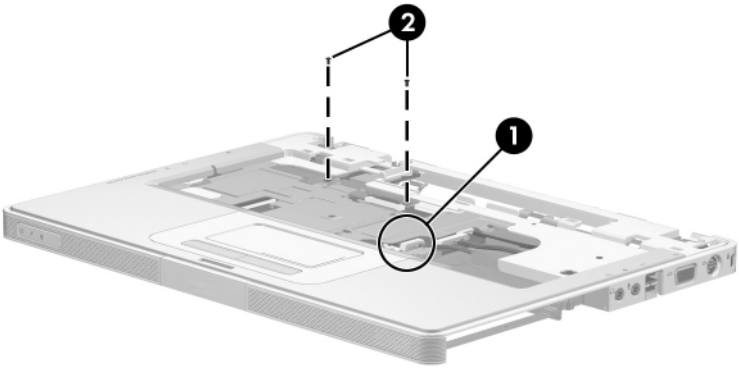
Steps 19 through 25 apply to Compaq Presario V4200 and HP Compaq nx7220 models.

19. Turn the top cover right-side up with the front toward you.
20. Disconnect the audio ❶, USB ❷, and Bluetooth cables ❸ from the system board.



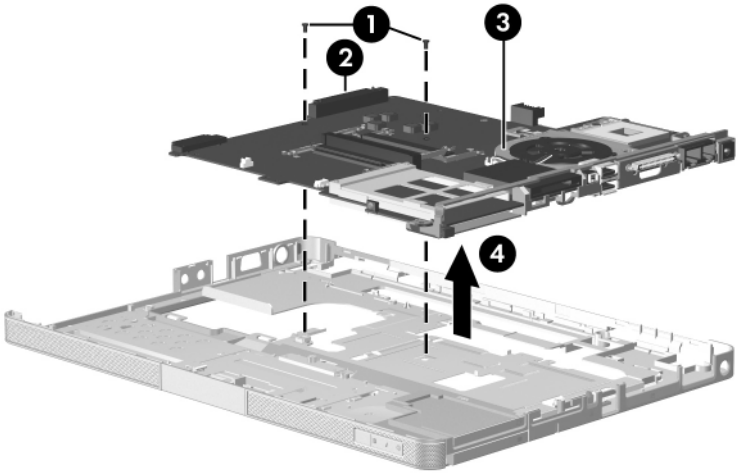
Disconnecting the System Board Cables, Compaq Presario V4200 and HP Compaq nx7220 Models

21. Release the ZIF connector to which the TouchPad cable is attached and disconnect the cable ❶ from the system board.
22. Remove the 2 Phillips PM2.0×4.0 screws ❷ that secure the system board to the top cover.



Removing the System Board Screws, Part 1,
Compaq Presario V4200 and HP Compaq nx7220 Models

23. Turn the top cover upside down with the front toward you.
24. Remove the 2 Phillips PM2.5×7.0 screws ❶ that secure the system board to the top cover.
25. Use the hard drive connector ❷ and fan frame ❸ to lift the system board straight up and remove it ❹.



Removing the System Board, Compaq Presario V4200 and HP Compaq nx7220 Models

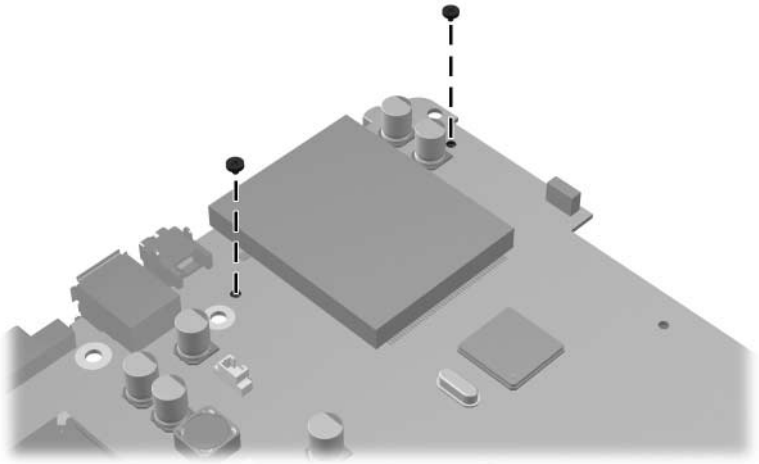
Reverse the above procedure to install the system board.

5.19 PC Card Assembly

PC Card Assembly Spare Part Number Information	
PC Card Assembly	403912-001

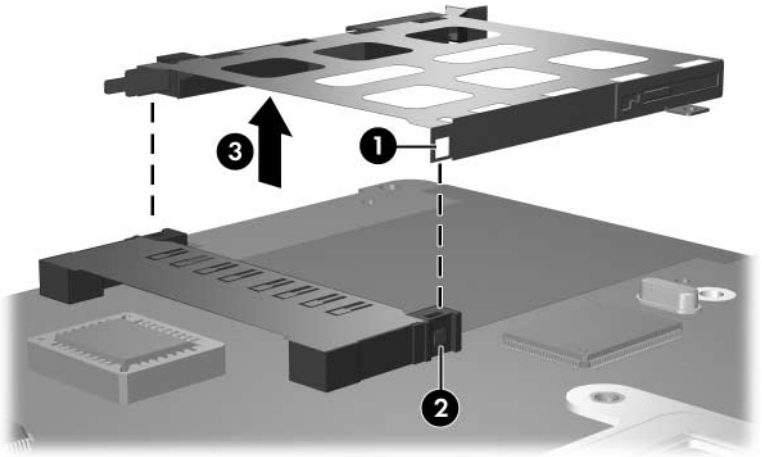
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (Section 5.15)
   f. System board (Section 5.18)

2. Turn the system board upside down with the audio jacks, USB ports, and external monitor port toward you.
3. Remove the 2 Phillips PM2.0×4.0 screws that secure the PC Card assembly to the system board.



Removing the PC Card Assembly Screws

4. Turn the system board top-side up with the audio jacks, USB ports, and external monitor port toward you.
5. Disengage the hooks ❶ on the PC Card assembly from the slots on the PC Card connector ❷ and remove the PC Card assembly from the system board.



Removing the PC Card Assembly

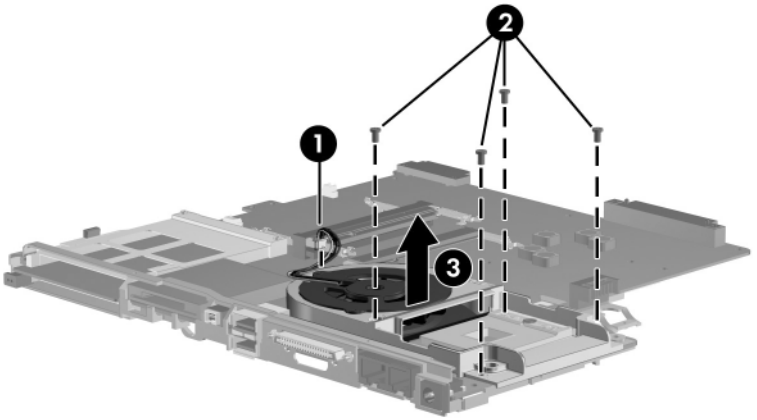
Reverse the above procedure to install the PC Card assembly.

5.20 Fan Assembly

The fan assembly is included in the heat sink assembly spare part kit, spare part number 384622-001. Refer to Section 5.10, "Heat Sink," for information on removing the heat sink.)

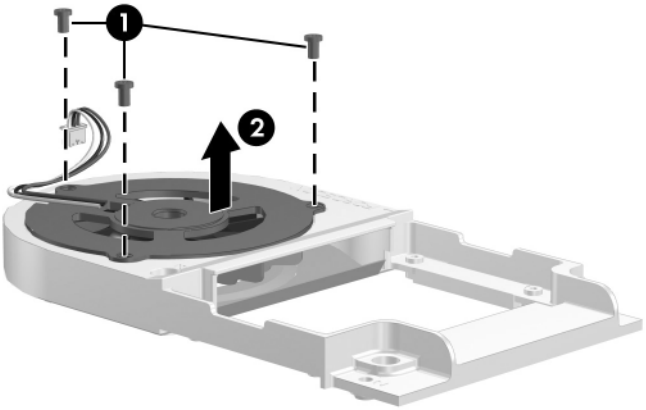
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (Section 5.15)
   f. System board (Section 5.18)
2. Turn the system board upside down with the right side toward you.

3. Disconnect the fan cable ❶ from the system board.
4. Remove the 4 Phillips PM2.5×7.0 screws ❷ that secure the fan assembly to the system board.
5. Remove the fan assembly ❸.



Removing the Fan Assembly

6. Remove the 3 Phillips PM2.0×4.0 screws ❶ that secure the fan to the fan assembly.
7. Remove the fan ❷.



Removing the Fan

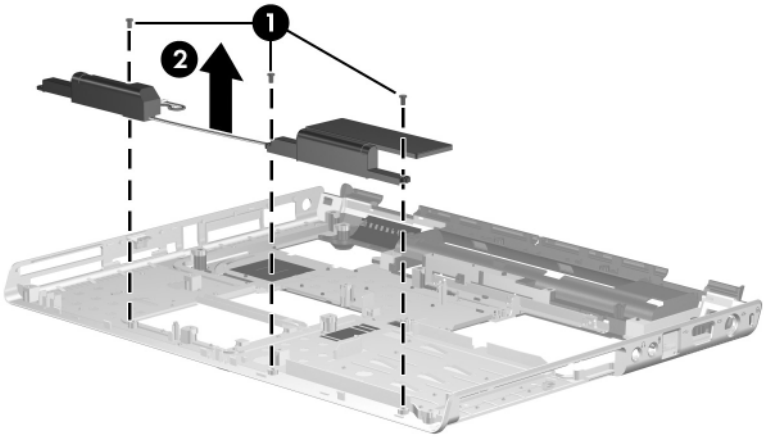
Reverse the above procedure to reassemble and install the fan assembly.

5.21 Speakers

Speakers Spare Part Number Information	
Speakers	383466-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (Section 5.15)
   f. System board (Section 5.18)

2. Remove the 3 Phillips PM2.0×4.0 screws ❶ that secure the left and right speakers to the base enclosure.
3. Remove the left and right speakers ❷.



Removing the Speakers

Reverse the above procedure to install the speakers.

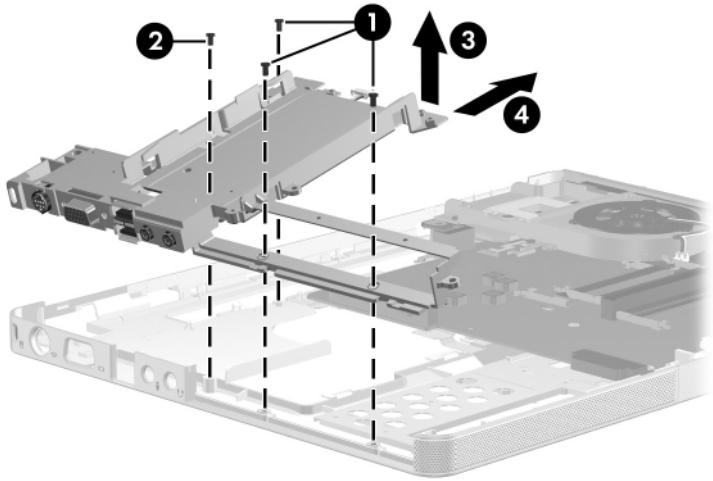
5.22 USB Board

This section applies to Compaq Presario V4200 and HP Compaq nx7220 models. Refer to steps 11 through 18 in Section 5.18, "System Board," for instructions for removing the USB board and frame on HP Pavilion dv4200 models.

USB Board Spare Part Number Information	
USB board (includes frame)	384625-001

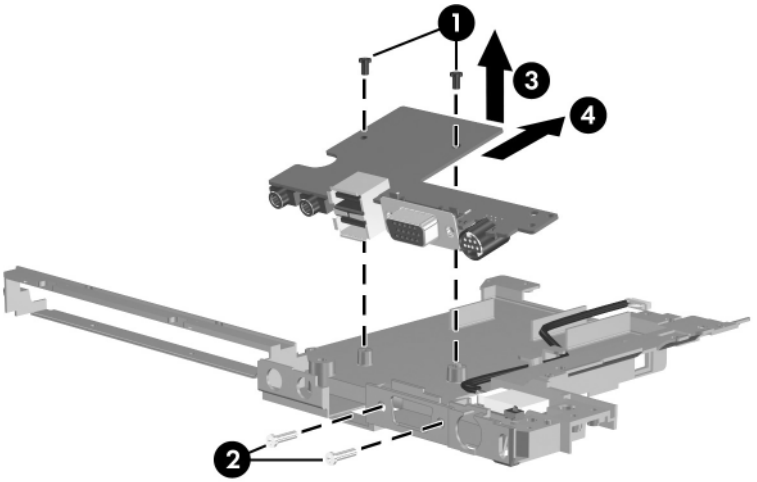
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4200 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4200 and HP Compaq nx7220 models, Section 5.16)
   g. System board (Section 5.18)
2. Position the top cover with the left side toward you.

3. Remove the 3 Phillips PM2.0×4.0 screws ❶ that secure the USB board and frame to the top cover.
4. Remove the Phillips PM 2.5×7.0 screw ❷ that secures the USB board and frame to the top cover.
5. Lift the rear edge of the USB board and frame ❸ until it disengages from the top cover.
6. Slide the USB board and frame away from you ❹ and remove it from the top cover.



Removing the USB Board and Frame, Compaq Presario and HP Compaq nx7220 V4200 Models

7. Remove the 2 Phillips PM2.0×4.0 screws ❶ that secure the USB board to the frame.
8. Remove the 2 Phillips PM2.5×8.0 screws ❷ that secure the USB board to the frame.
9. Lift the rear edge of the USB board ❸ until it disengages from the frame.
10. Slide the frame away ❹ and remove it.



Removing the USB Board

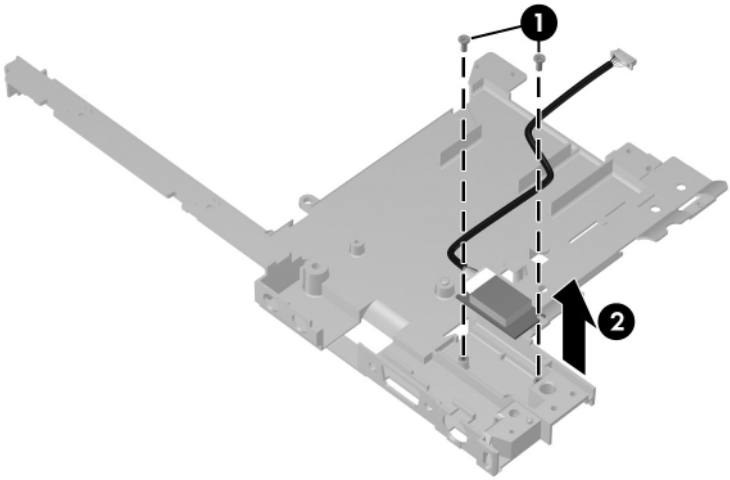
Reverse the above procedure to install the USB board.

5.23 Bluetooth Module

Bluetooth Module Spare Part Number Information	
For use with HP Pavilion dv4200 and Compaq Presario V4200 models	397923-001
For use with HP Compaq nx7220 models	383459-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   a. Hard drive (Section 5.4)
   b. Switch cover (Section 5.12)
   c. Keyboard (Section 5.13)
   d. Display assembly (Section 5.14)
   e. Top cover (HP Pavilion dv4200 models, Section 5.15)
   f. Base enclosure (Compaq Presario V4200 and HP Compaq nx7220 models, Section 5.16)
   g. System board (Section 5.18)
   h. USB board (Section 5.22)

2. Remove the 2 Phillips PM1.5×4.0 screws ❶ that secure the Bluetooth module to the USB board frame.
3. Remove the Bluetooth module ❷.



Removing the Bluetooth Module

Reverse the above procedure to install the Bluetooth module.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1

Computer

Dimensions	**Metric**	**U.S.**
Height	3.35 cm	1.32 in
Width	35.85 cm	14.13 in
Depth	25.78 cm	10.16 in
Weight		
Full-featured model with 15.4-inch display, optical drive and 12-cell battery pack	2.99 kg	6.48 lbs
Input Power		
Operating voltage	18.5 V dc @ 3.5 A - 65 W	
Operating current	3.5 A	
Temperature		
Operating	10°C to 35°C	50°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F

Table 6-1

Computer *(Continued)*

Relative humidity (noncondensing)		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random Vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate	

Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

Table 6-2

15.4-inch, WXGA, TFT Display

Dimensions		
Height	20.9 cm	8.1 in
Width	33.1 cm	13.0 in
Diagonal	39.1 cm	15.4 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1	
Brightness	180 nits typical	
Pixel resolution		
Pitch	0.259 × 0.259 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	5.5 W	
Viewing angle	+/-65° horizontal, +50° vertical typical	

Table 6-3

Hard Drives

	100-GB*	80-GB*	80-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	102 g	99 g	99 g
Interface type	ATA-5	ATA-5	ATA-5
Transfer rate			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks†	195,364,233	156,301,488	156,301,488
Disc rotational speed	4200 rpm	5400 rpm	4200 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)		

✎ Certain restrictions and exclusions apply. Consult Customer Care for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.

†Actual drive specifications may differ slightly.

Table 6-3

Hard Drives *(Continued)*

	60-GB*	60-GB*	40-GB*
Dimensions			
Height	9.5 mm	9.5 mm	9.5 mm
Width	70 mm	70 mm	70 mm
Weight	102 g	99 g	99 g
Interface type	ATA-5	ATA-5	ATA-5
Transfer rate			
Synchronous (maximum)	100 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	3 ms	3 ms	3 ms
Average	13 ms	13 ms	13 ms
Maximum	24 ms	24 ms	24 ms
Logical blocks†	117,210,240	117,210,240	78,140,160
Disc rotational speed	5400 rpm	4200 rpm	4200 rpm
Operating temperature	5°C to 55°C (41°F to 131°F)		

✎ Certain restrictions and exclusions apply. Consult Customer Care for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.

†Actual drive specifications may differ slightly.

Table 6-4

Primary 6-cell, Li-Ion Battery Pack

Dimensions		
Height	2.00 cm	0.79 in
Width	9.40 cm	3.70 in
Depth	13.40 cm	5.28 in
Weight	0.34 kg	0.75 lb
Energy		
Voltage	11.1 V	
Amp-hour capacity	4.4 Ah	
Watt-hour capacity	48 Wh	
Temperature		
Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F

Table 6-5

DVD/CD-RW Combo Drive

Applicable disc	**Read:** DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2) CD Digital Audio, CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R, CD-RW, Photo CD (single and multisession), and CD-Bridge	**Write:** CD-R and CD-RW
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	
Access time	CD media	DVD media
Random	< 110 ms	< 130 ms
Full stroke	< 210 ms	< 225 ms
Audio output level	Line-out, 0.7 V rms	
Cache buffer	2 MB	
Data transfer rate		
CD-R (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
CD-RW (10X)	1500 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-6

DVD±RW and CD-RW Combo Drive

Applicable disc	**Read:** DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2), CD Digital Audio, CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R, CD-RW, Photo CD (single and multisession), CD-Bridge	**Write:** CD-R and CD-RW DVD-R and DVD-RW
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	

Table 6-6

DVD±RW and CD-RW Combo Drive *(Continued)*

Access time	CD	DVD
Random	< 175 ms	< 230 ms
Full stroke	< 285 ms	< 335 ms
Audio output level	Audio-out, 0.7 Vrms	
Cache buffer	2 MB	
Data transfer rate		
CD-R (16X)	2,400 KB/s (150 KB/s at 1X CD rate)	
CD-RW (8X)	1,200 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3,600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-R (4X)	5,400 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-RW (2X)	2,700 KB/s (1,352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

Table 6-7

System DMA

Hardware DMA	System Function
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5*	Available for PC Card
DMA6	Not assigned
DMA7	Not assigned

*PC Card controller can use DMA 1, 2, or 5.

Table 6-8

System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft Natural Keyboard
IRQ2	Cascaded
IRQ3	Intel 82801DB/DBM USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio Intel 82801DB/DBM SMBus Controller—24C3 Data Fax Modem with SmartCP
IRQ6	Diskette drive
IRQ7*	Parallel port
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ10*	Intel USB UHCI controller—24C2 Intel 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller

Table 6-8

System Interrupts *(Continued)*

IRQ11	Intel USB EHCI controller—24CD Intel USB UHCI controller—24C4 Intel USB UHCI controller—24C7 Intel Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel

*Default configuration; audio possible configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.

PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.

Table 6-9

System I/O Addresses

I/O Address (hex)	**System Function** (shipping configuration)
000 - 00F	DMA controller no. 1
010 - 01F	Unused
020 - 021	Interrupt controller no. 1
022 - 024	Opti chipset configuration registers
025 - 03F	Unused
02E - 02F	87334 “Super I/O” configuration for CPU
040 - 05F	Counter/timer registers
044 - 05F	Unused
060	Keyboard controller
061	Port B
062 - 063	Unused
064	Keyboard controller
065 - 06F	Unused
070 - 071	NMI enable/RTC
072 - 07F	Unused
080 - 08F	DMA page registers
090 - 091	Unused
092	Port A
093 - 09F	Unused
0A0 - 0A1	Interrupt controller no. 2

Table 6-9

System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
0A2 - 0BF	Unused
0C0 - 0DF	DMA controller no. 2
0E0 - 0EF	Unused
0F0 - 0F1	Coprocessor busy clear/reset
0F2 - 0FF	Unused
100 - 16F	Unused
170 - 177	Secondary fixed disk controller
178 - 1EF	Unused
1F0 - 1F7	Primary fixed disk controller
1F8 - 200	Unused
201	Joystick (decoded in ESS1688)
202 - 21F	Unused
220 - 22F	Entertainment audio
230 - 26D	Unused
26E - 26	Unused
278 - 27F	Unused
280 - 2AB	Unused
2A0 - 2A7	Unused
2A8 - 2E7	Unused
2E8 - 2EF	Reserved serial port

Table 6-9

System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
2F0 - 2F7	Unused
2F8 - 2FF	Infrared port
300 - 31F	Unused
320 - 36F	Unused
370 - 377	Secondary diskette drive controller
378 - 37F	Parallel port (LPT1/default)
380 - 387	Unused
388 - 38B	FM synthesizer—OPL3
38C - 3AF	Unused
3B0 - 3BB	VGA
3BC - 3BF	Reserved (parallel port/no EPP support)
3C0 - 3DF	VGA
3E0 - 3E1	PC Card controller in CPU
3E2 - 3E3	Unused
3E8 - 3EF	Internal modem
3F0 - 3F7	“A” diskette controller
3F8 - 3FF	Serial port (COM1/default)
CF8 - CFB	PCI configuration index register (PCIDIVO-1)
CFC - CFF	PCI configuration data register (PCIDIVO-1)

Table 6-10

System Memory Map

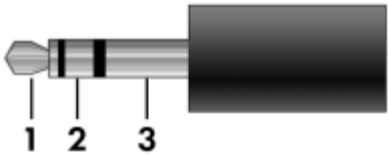
Size	Memory Address	System Function
640 KB	00000000-0009FFFF	Base memory
128 KB	000A0000-000BFFFF	Video memory
48 KB	000C0000-000CBFFF	Video BIOS
160 KB	000C8000-000E7FFF	Unused
64 KB	000E8000-000FFFFF	System BIOS
15 MB	00100000-00FFFFFF	Extended memory
58 MB	01000000-047FFFFF	Super extended memory
58 MB	04800000-07FFFFFF	Unused
2 MB	08000000-080FFFFF	Video memory (direct access)
4 GB	08200000-FFFEFFFF	Unused
64 KB	FFFF0000-FFFFFFFF	System BIOS

A

Connector Pin Assignments

Table A-1

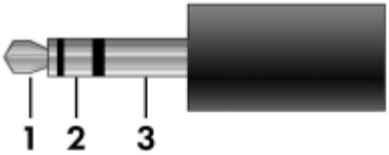
Audio-Out (Headphone)



Pin	Signal	Pin	Signal
1	Audio out, left channel	3	Ground
2	Audio out, right channel		

Table A-2

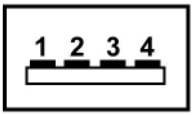
Audio-In (Microphone)



Pin	Signal	Pin	Signal
1	Audio signal in	3	Ground
2	Audio signal in		

Table A-3

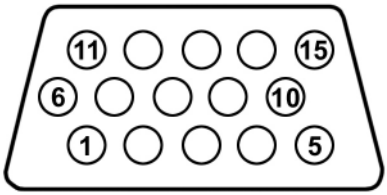
Universal Serial Bus



Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data –	4	Ground

Table A-4

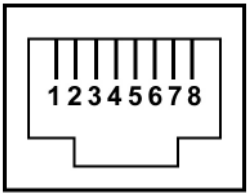
External Monitor



Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

Table A-5

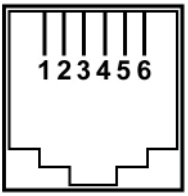
RJ-45 (Network)



Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit –	6	Receive –
3	Receive +	7	Unused
4	Unused	8	Unused

Table A-6

RJ-11 (Modem)



Pin	Signal	Pin	Signal
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

Table A-7

S-Video-Out

Pin	Signal	Pin	Signal
1	S-VHS color (C) signal	5	TV-CD
2	Composite video signal	6	S-VHS intensity ground
3	S-VHS intensity (Y) signal	7	Composite video ground
4	S-VHS color ground		

B

Power Cord Set Requirements

3-Conductor Power Cord Set

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

The power cord set included with the computer meets the requirements for use in the country where the equipment is purchased.

Power cord sets for use in other countries must meet the requirements of the country where the computer is used.

General Requirements

The requirements listed below are applicable to all countries.

- The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements

Country/Region	Accredited Agency	Applicable Note Number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3

NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

3-Conductor Power Cord Set Requirements *(Continued)*

Country/Region	Accredited Agency	Applicable Note Number
Korea	EK	4
The Netherlands	KE A	1
Norway	NEMKO	1
People's Republic of China	CCC	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
United Kingdom	BSI	1
United States	UL	2

NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

C

Screw Listing

This appendix provides specification and reference information for the screws and screw locks used in the computer. All screws and screw locks listed in this appendix are available in the following Screw Kits:

- Computer Screw Kit, spare part number 382692-001
- Display Screw Kit for use with HP Pavilion dv4200 models, spare part number 403923-001
- Display Screw Kit for use with Compaq Presario V4200 and HP Compaq nx7220 models, spare part number 403924-001

Table C-1

Phillips PM2.0×5.0 Screw

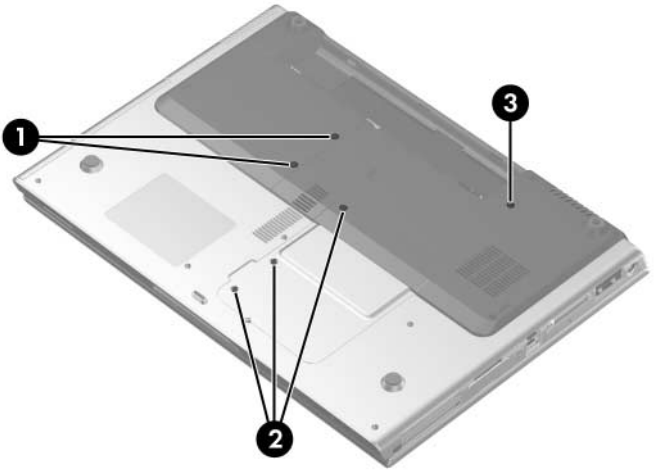
mm	Color	Qty.	Length	Thread	Head Width
	Black	6	5.0 mm	2.0 mm	5.0 mm

Where used:

❶ Two screws that secure the hard drive cover to the computer (screws are captured on the cover by C clips; documented in Section 5.4)

❷ Three screws that secure the memory module compartment cover to the computer (screw is captured on the cover by C clips; documented in Section 5.7)

❸ One screw that secures the thermal cover to the computer (screw is captured on the cover by C clips; documented in Section 5.10)



Phillips PM2.0×5.0 Screw Locations

Table C-2

Phillips PM2.5×4.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Black	4	4.0 mm	2.5 mm	4.5 mm

Where used:

4 screws that secure the hard drive frame to the hard drive (documented in Section 5.4)

Phillips PM2.5×4.0 Screw Locations

Table C-3

Phillips PM2.5×7.0 Screw

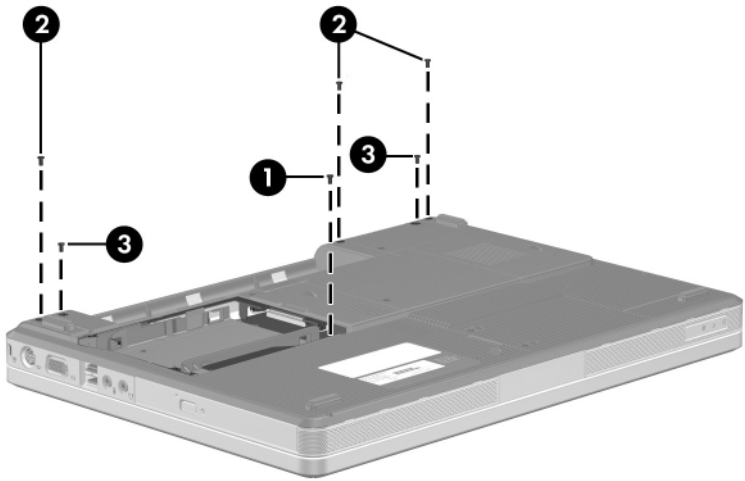
mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

❶ One screw that secures the optical drive to the computer (documented in Section 5.6)

❷ Three screws that secure the switch cover on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.12)

❸ Two screws that secure the display assembly to the computer (documented in Section 5.14)



Phillips PM2.5×7.0 Screw Locations

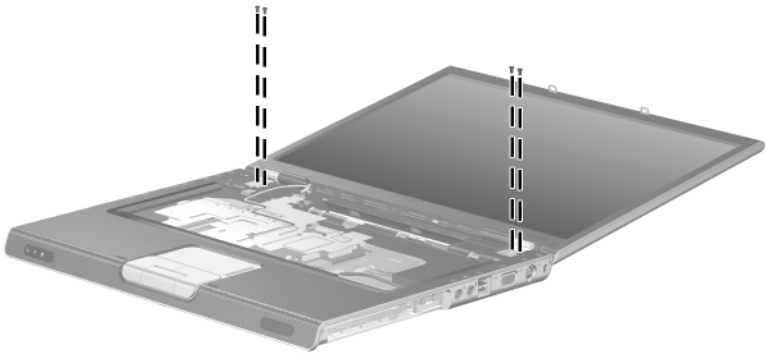
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

4 screws that secure the display assembly to the computer (documented in Section 5.14)



Phillips PM2.5×7.0 Screw Locations

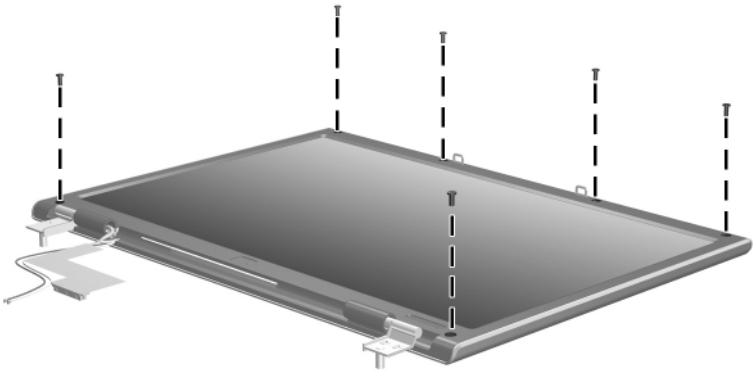
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

6 screws that secure the display bezel to the display assembly (documented in Section 5.14)



Phillips PM2.5×7.0 Screw Locations

Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

6 screws that secure the display hinges to the display enclosure (documented in Section 5.14)

Phillips PM2.5×7.0 Screw Locations

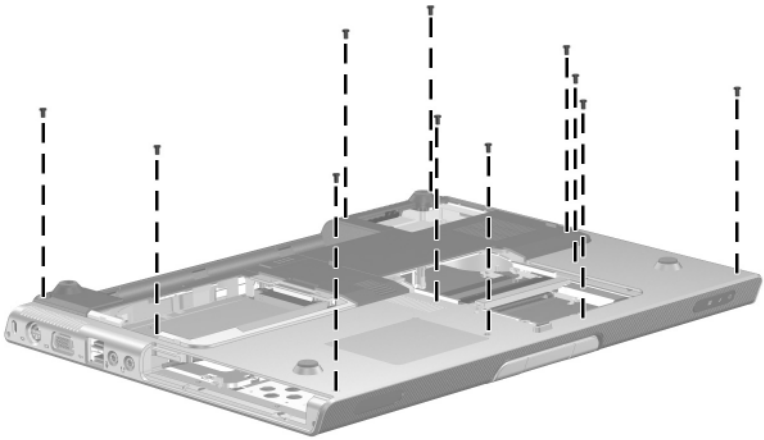
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

11 screws that top cover to the HP Pavilion dv4200 (documented in Section 5.15)



Phillips PM2.5×7.0 Screw Locations

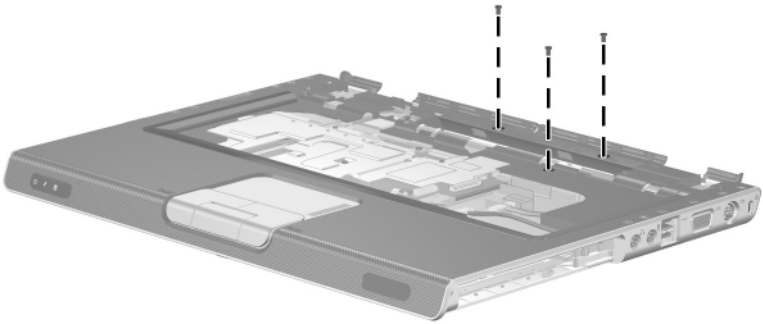
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

3 screws that secure the top cover to the HP Pavilion dv4200 (documented in Section 5.15)



Phillips PM2.5×7.0 Screw Locations

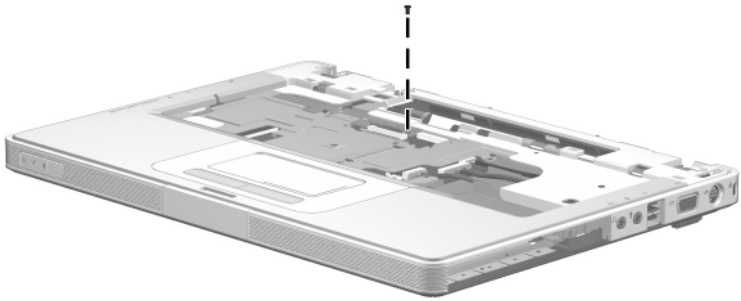
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

One that secures the base enclosure to Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.16)



Phillips PM2.5×7.0 Screw Location

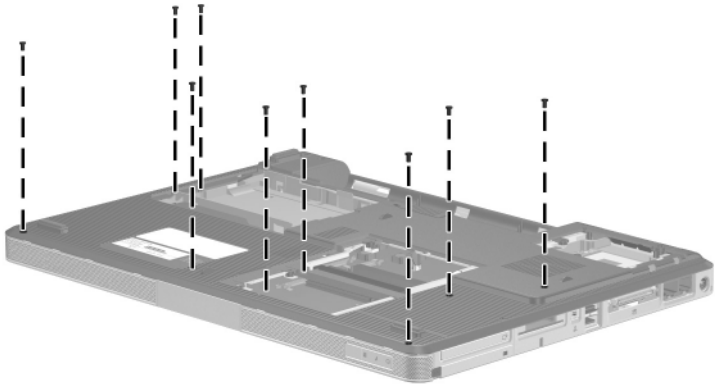
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

9 screws that secure the base enclosure to Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.16)



Phillips PM2.5×7.0 Screw Locations

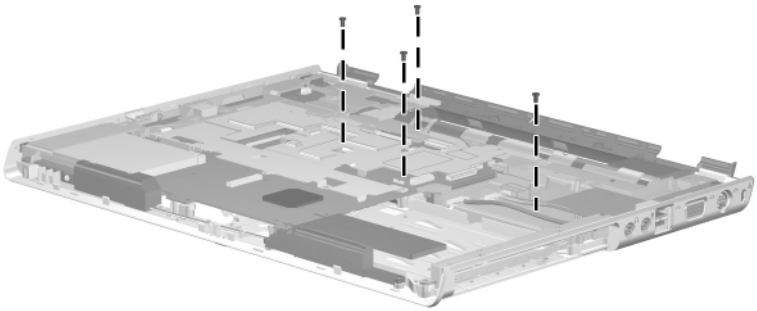
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

4 screws that secure the system board on HP Pavilion dv4200 models (documented in Section 5.18)



Phillips PM2.5×7.0 Screw Locations

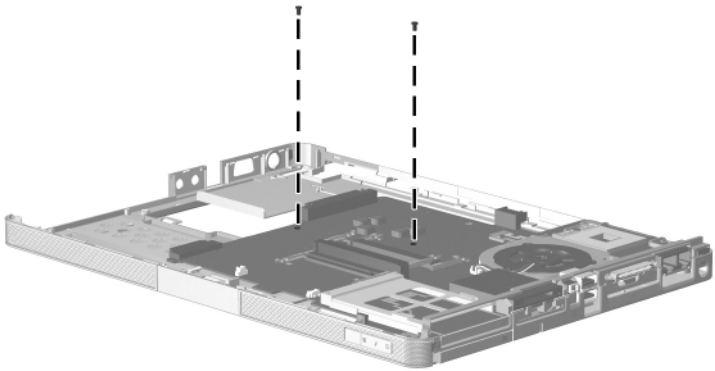
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

2 screws that secure the system board to the top cover on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.18)



Phillips PM2.5×7.0 Screw Locations

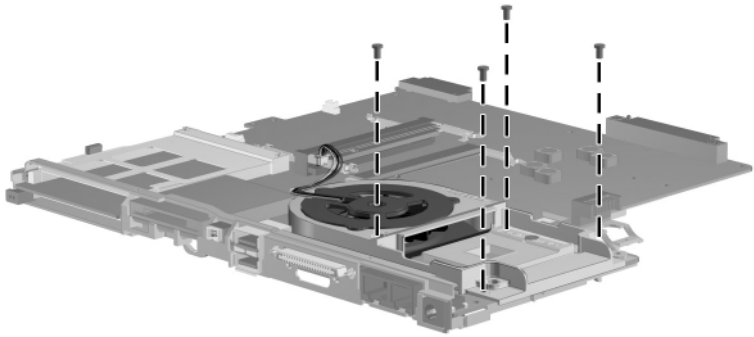
Table C-3

Phillips PM2.5×7.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	56	7.0 mm	2.5 mm	4.5 mm

Where used:

4 screws that secure the fan assembly to the system board (documented in Section 5.20)



Phillips PM2.5×7.0 Screw Locations

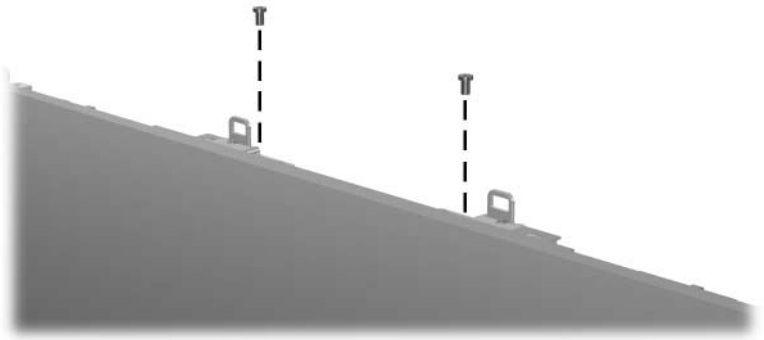
Table C-4

Phillips PM2.5×5.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Silver	8	5.0 mm	2.5 mm	4.0 mm

Where used:

2 screws that secure the display release hooks to the display enclosure (documented in Section 5.14)



Phillips PM2.5×5.0 Screw Locations

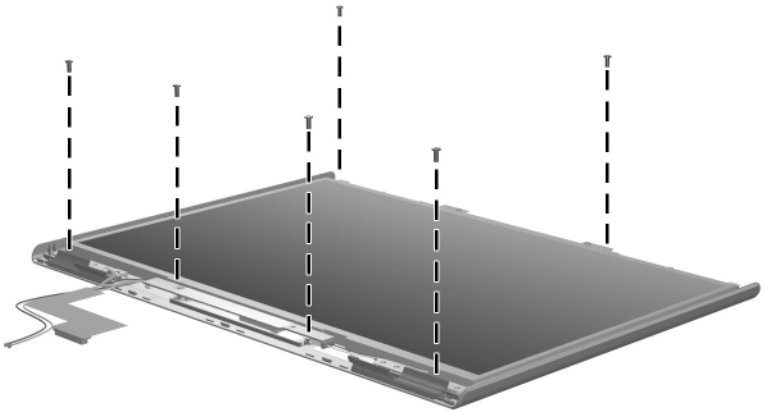
Table C-4

Phillips PM2.5×5.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Silver	8	5.0 mm	2.5 mm	4.0 mm

Where used:

6 screws that secure the display panel to the display enclosure (documented in Section 5.14)



Phillips PM2.5×5.0 Screw Locations

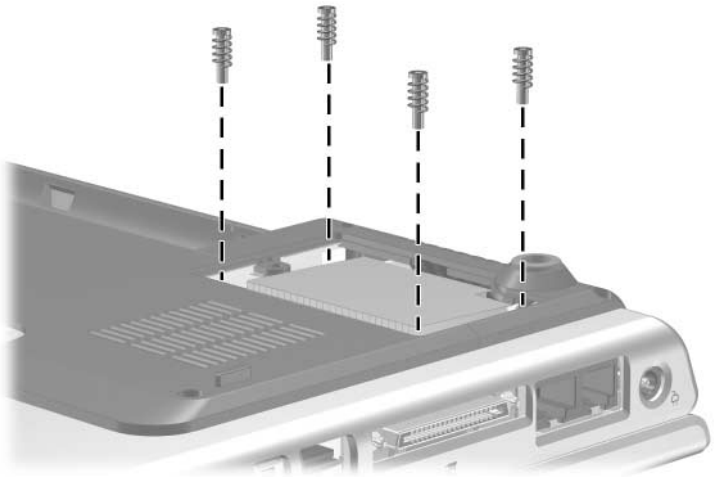
Table C-5

Phillips PM2.0×12.0 Spring-Loaded Screw

mm	Color	Qty.	Length	Thread	Head Width
	Silver	4	12.0	2.0 mm	5.0 mm

Where used:

4 screws that secure the heat sink to the computer (documented in Section 5.10)



Phillips PM2.0×12.0 Spring-Loaded Screw Locations

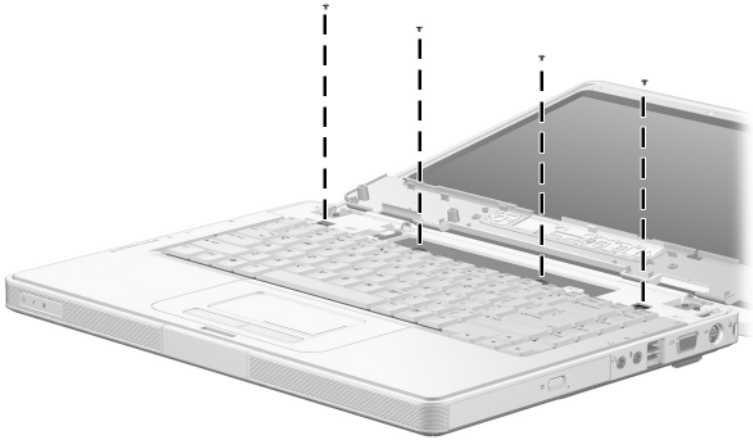
Table C-6

Black Phillips PM2.0×2.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Black	4	2.0 mm	2.0 mm	5.0 mm

Where used:

4 screws that secure the keyboard on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.13)



Phillips PM2.0×2.0 Screw Locations

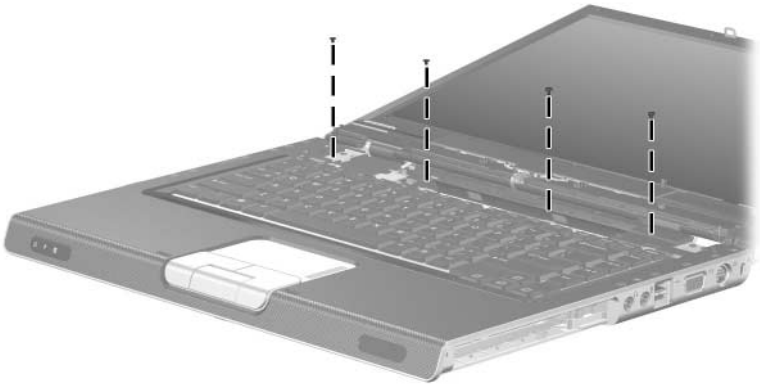
Table C-7

Silver Phillips PM2.0×2.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Silver	4	2.0 mm	2.0 mm	7.0 mm

Where used:

4 screws that secure the keyboard on HP Pavilion dv4200 models (documented in Section 5.13)



Phillips PM2.0×2.0 Screw Locations

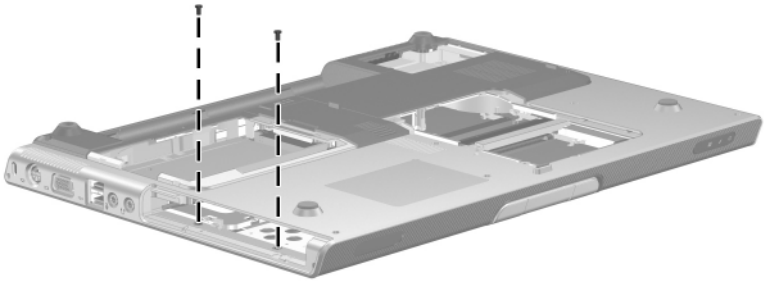
Table C-8

Phillips PM2.0×4.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the top cover HP Pavilion dv4200 models (documented in Section 5.15)



Phillips PM2.0×4.0 Screw Locations

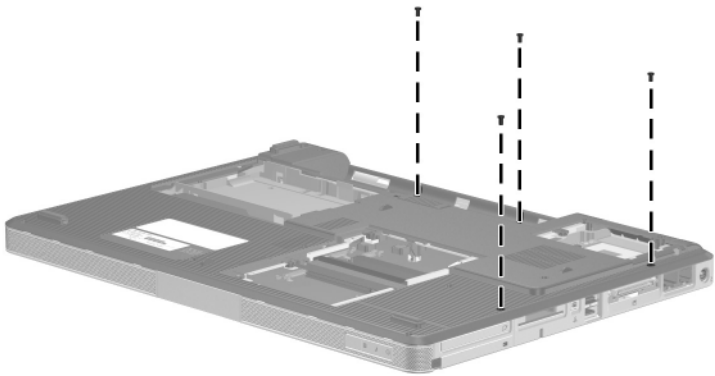
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

4 screws that secure the base enclosure on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.16)



Phillips PM2.0×4.0 Screw Locations

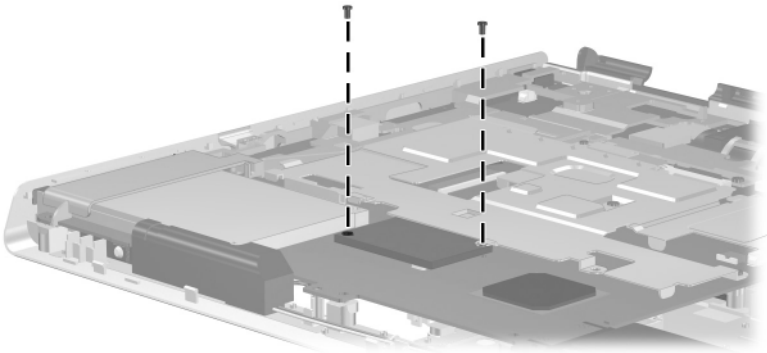
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the modem board to the system board (documented in Section 5.17)



Phillips PM2.0×4.0 Screw Locations

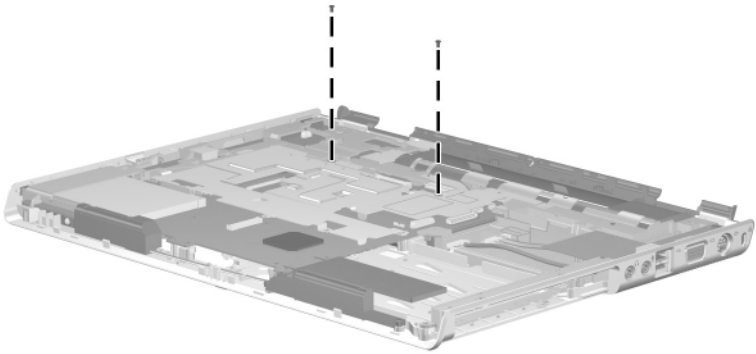
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the system board to the base enclosure on HP Pavilion dv4200 models (documented in Section 5.18)



Phillips PM2.0×4.0 Screw Locations

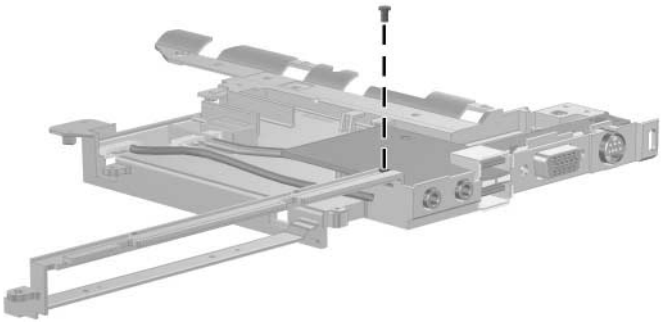
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

One screw that secures the USB board and frame to the base enclosure on HP Pavilion dv4200 models (documented in Section 5.18) and to the top cover on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.22)



Phillips PM2.0×4.0 Screw Location

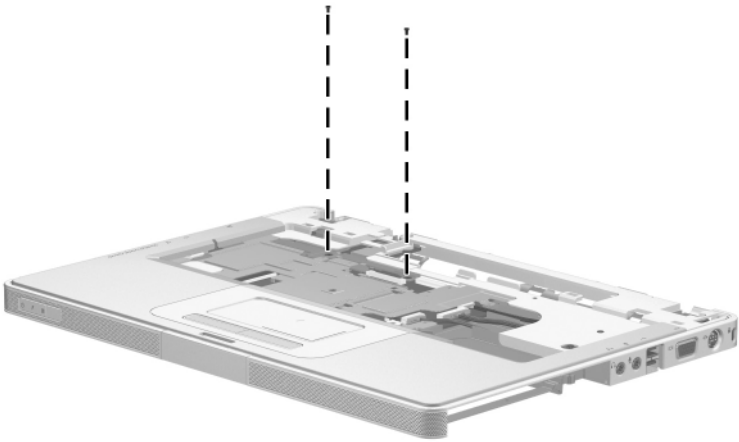
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the system board to the top cover (documented in Section 5.18)



Phillips PM2.0×4.0 Screw Locations

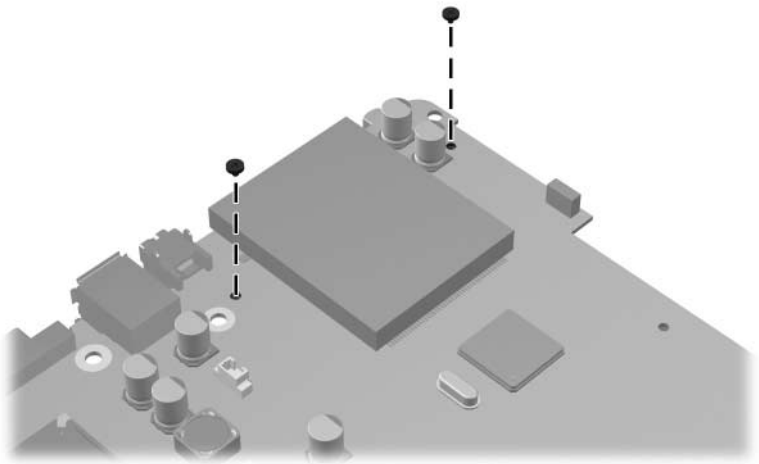
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the PC Card assembly to the system board (documented in Section 5.19)



Phillips PM2.0×4.0 Screw Locations

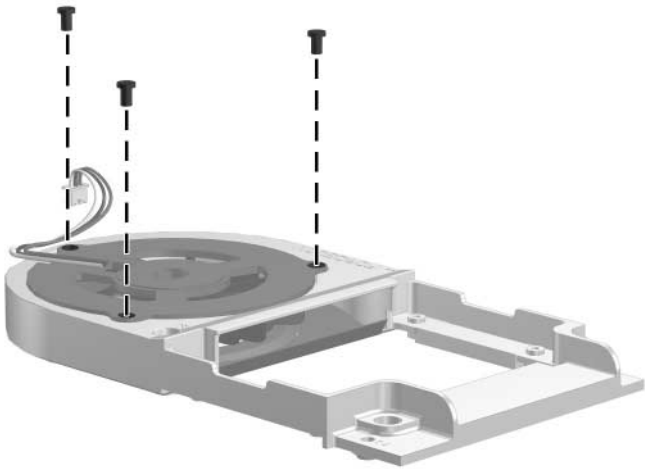
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

3 screws that secure the fan to the fan assembly (documented in Section 5.20)



Phillips PM2.0×4.0 Screw Locations

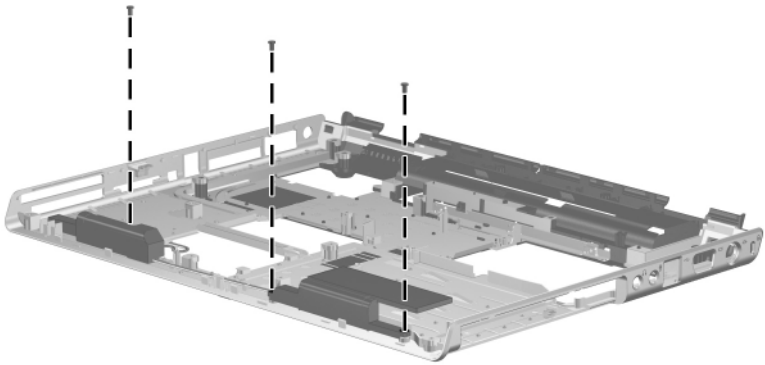
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

3 screws that secure the speaker to the base enclosure (documented in Section 5.21)



Phillips PM2.0×4.0 Screw Locations

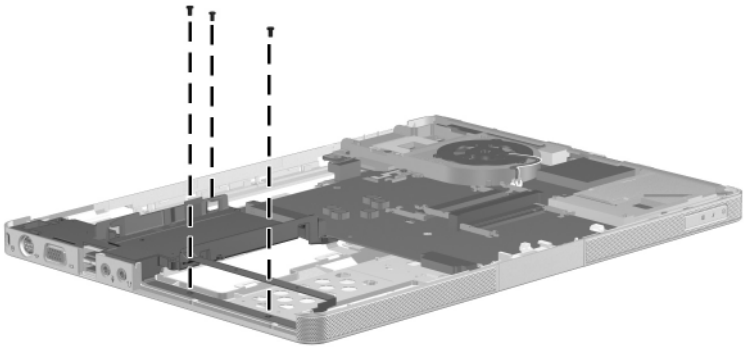
Table C-8

Phillips PM2.0×4.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Black	24	4.0 mm	2.0 mm	4.0 mm

Where used:

3 screws that secure the USB board and frame to the computer (documented in Section 5.22)



Phillips PM2.0×4.0 Screw Locations

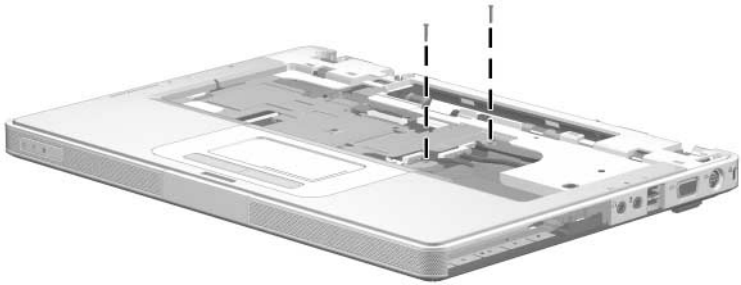
Table C-9

Phillips PM2.0×16.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Black	2	16.0 mm	2.0 mm	4.5 mm

Where used:

2 screws that secure the base enclosure on Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.16) and the system board on HP Pavilion dv4200 models (documented in Section 5.18)



Phillips PM2.0×16.0 Screw Locations

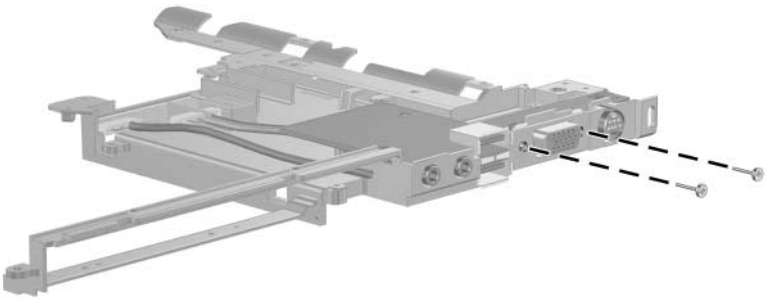
Table C-10

Phillips PM2.5×8.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Silver	2	8.0 mm	2.5 mm	5.0 mm

Where used:

2 screws that secure the USB board to the frame on HP Pavilion dv4200 models (documented in Section 5.18) and Compaq Presario V4200 and HP Compaq nx7220 models (documented in Section 5.22)



Phillips PM2.5×8.0 Screw Locations

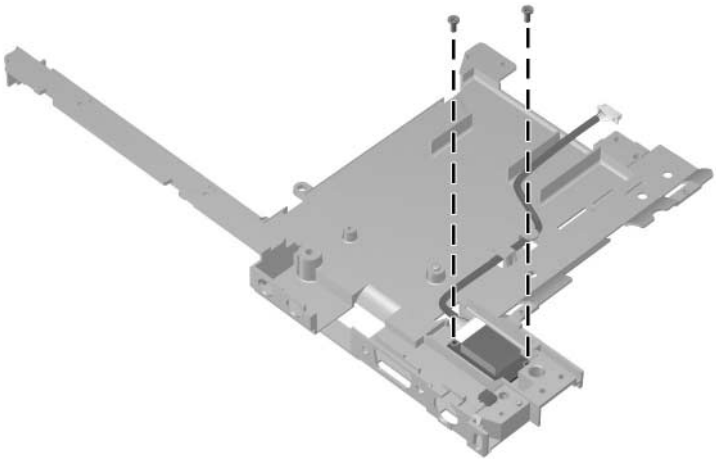
Table C-11

Phillips PM1.5×4.0 Screw

mm	Color	Qty.	Length	Thread	Head Width
	Silver	2	4.0 mm	1.5 mm	3.0 mm

Where used:

2 screws that secure the Bucktooth board to the USB board frame (documented in Section 5.23)



Phillips PM1.5×4.0 Screw Locations

D

Display Component Recycling

WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

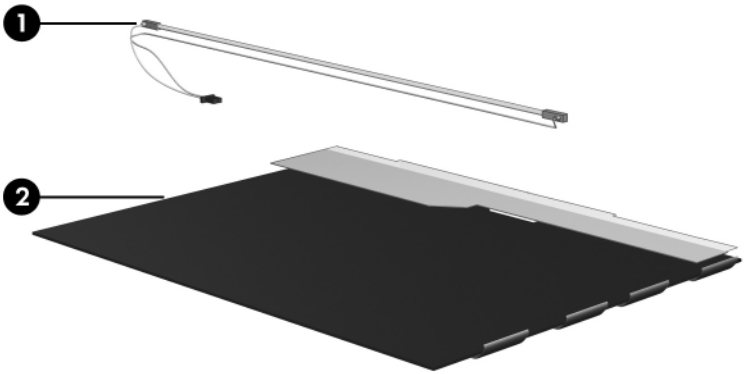
CAUTION: The procedures in this appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling should be exercised when removing these components.

Materials Disposal

This HP product contains mercury in the backlight in the display assembly and may require special handling at end-of-life.

Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities or visit the Electronic Industries Alliance (EIA) at http://www.eiae.org.

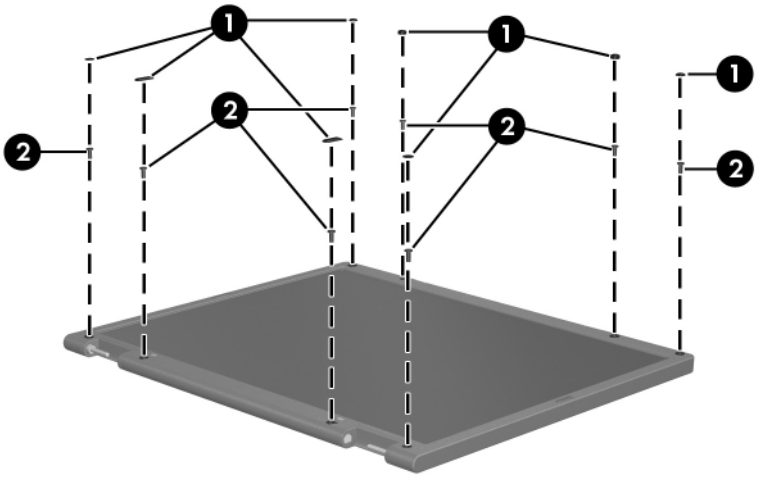
This appendix provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the liquid crystal display (LCD) panel ❷.



Disassembly procedures differ from one display assembly to another. The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

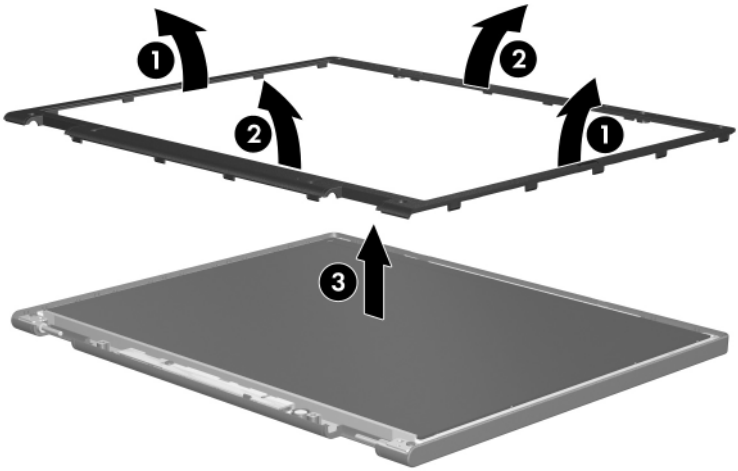
Perform the following steps to disassemble the display assembly:

1. Remove all screw covers ❶ and screws ❷ that secure the display bezel to the display assembly.



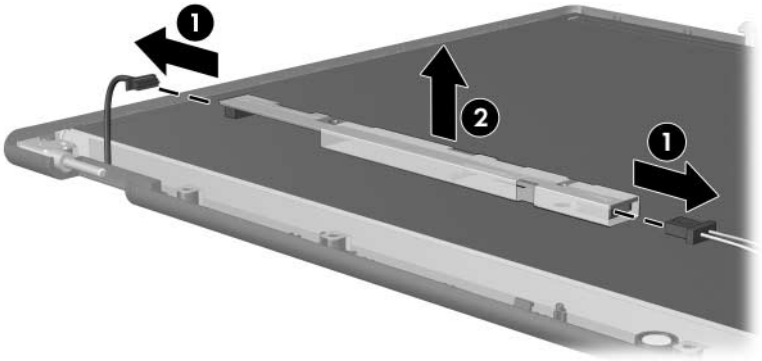
Removing the Display Bezel Screw Covers and Screws

2. Lift up and out on the left and right inside edges ❶ and the top and bottom inside edges ❷ of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel ❸.



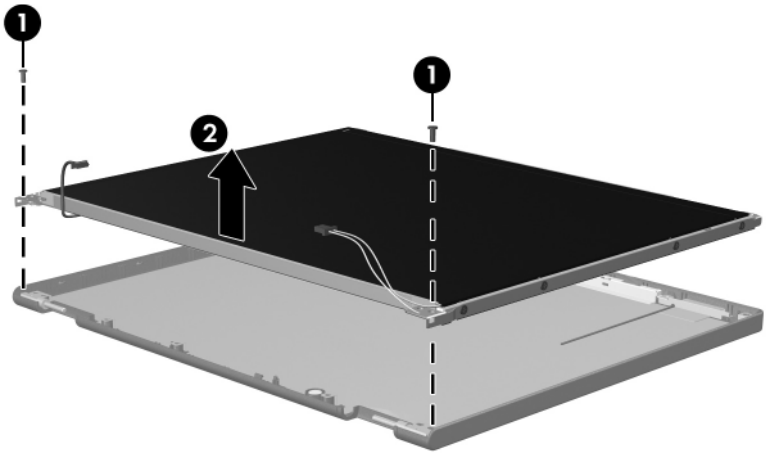
Removing the Display Bezel

4. Disconnect all display panel cables ❶ from the display inverter and remove the inverter ❷.



Removing the Display Inverter

5. Remove all screws ❶ that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly ❷ from the display enclosure.

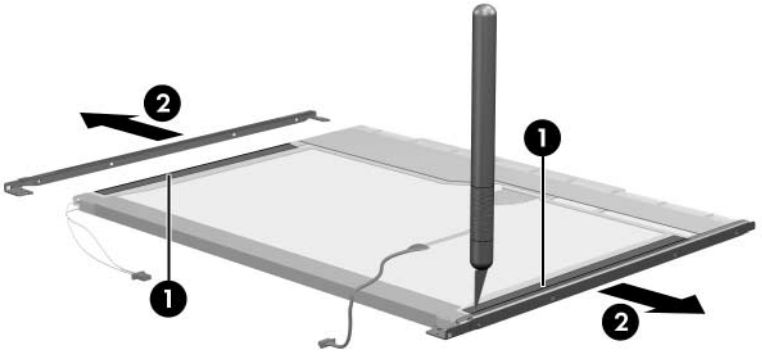


Removing the Display Panel Assembly

7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

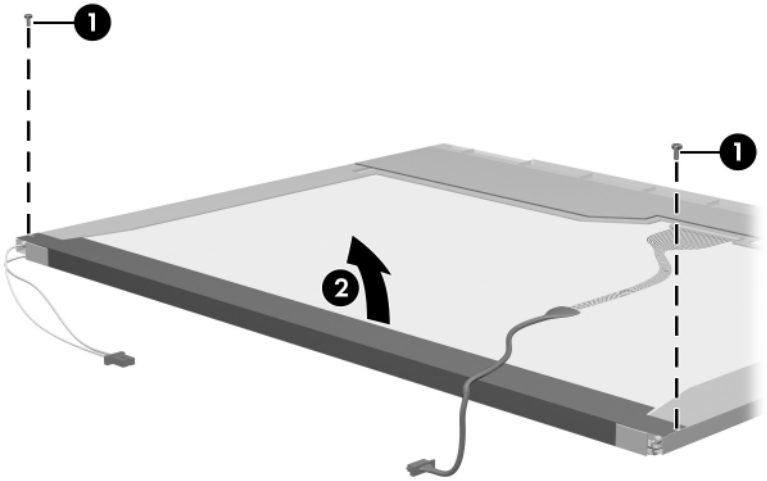
Removing the Display Panel Frame Screws

9. Use a sharp-edged tool to cut the tape ❶ that secures the side of the display panel to the display panel frame.
10. Remove the display panel frame ❷ from the display panel.



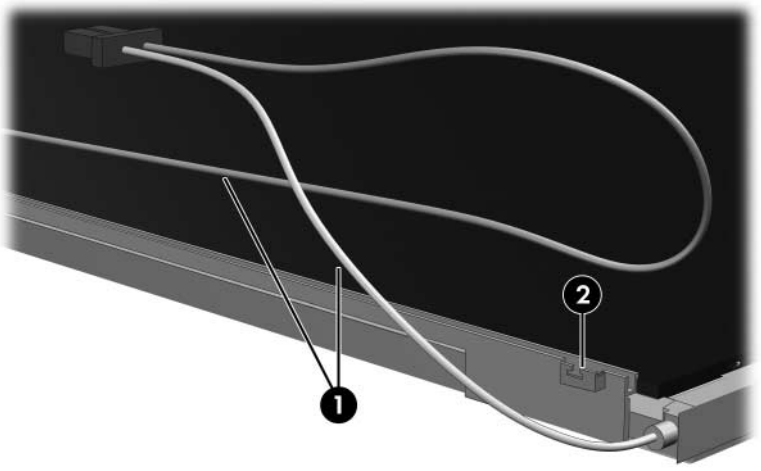
Removing the Display Frame

11. Remove the screws ❶ that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover ❷ and swing it forward.
13. Remove the backlight cover.



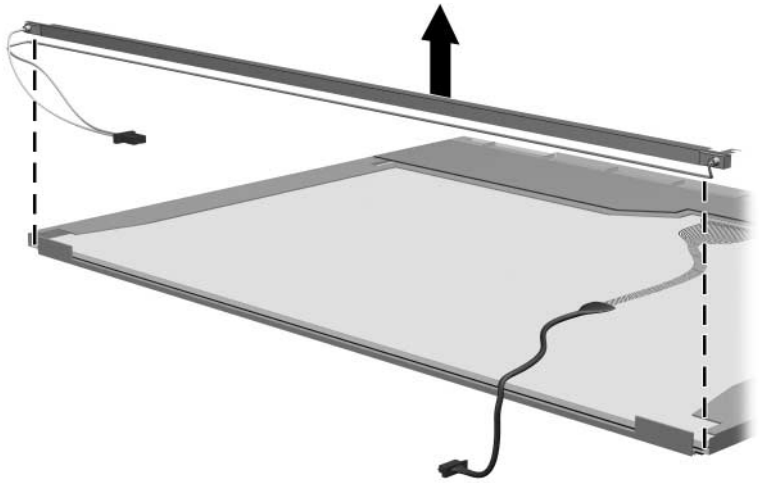
Removing the Backlight Cover

14. Turn the display panel right-side up.
15. Remove the backlight cables ❶ from the clip ❷ in the display panel.



Releasing the Backlight Cables

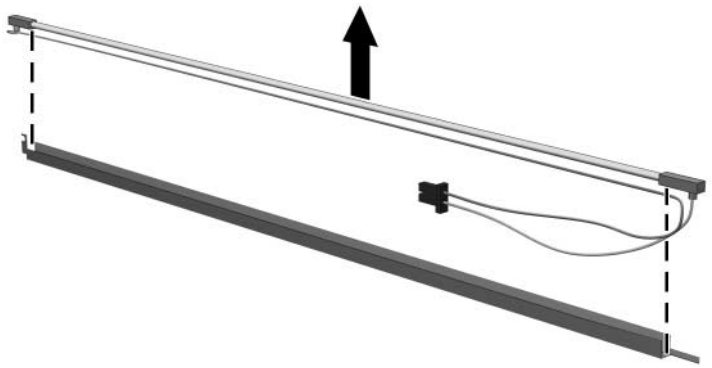
16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.



Removing the Backlight Frame

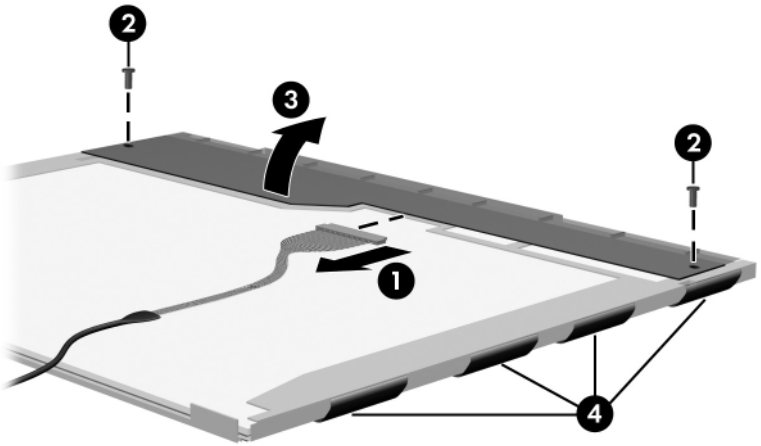
WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Slide the backlight out of the backlight frame.



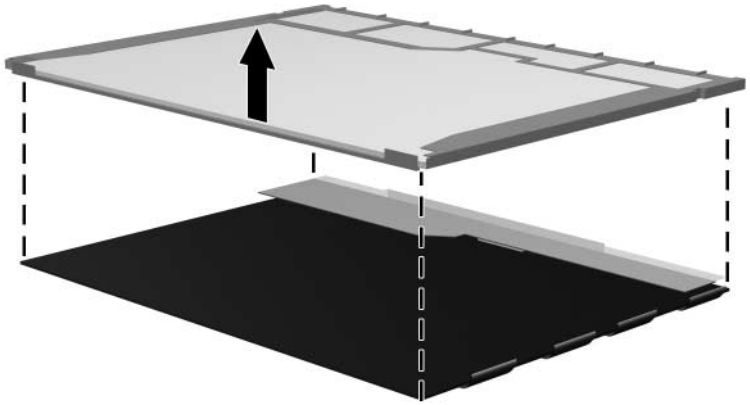
Removing the Backlight

19. Disconnect the display cable ❶ from the LCD panel.
20. Remove the screws ❷ that secure the LCD panel to the display rear panel.
21. Release the LCD panel ❸ from the display rear panel.
22. Release the tape ❹ that secures the LCD panel to the display rear panel.



Releasing the LCD Panel

23. Remove the LCD panel.



Removing the LCD Panel

24. Recycle the backlight and LCD panel.

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